ELECTRICITY ON THE FARM *Magazine*

MAY, 1948

USDA Step-Saving Kitchen
Lightning Protection Methods
Blessing's Corn and Hay Drier
Elevators on the Ward Farm
Steps in Freezing Vegetables

21st Year . . . . No. 5

VIRGINIA POLYTECHNIC INSTITUTE
AGRICULTURAL ENGINEERING DEPARTMENT
BLACKSBURG, VIRGINIA

See
HOUSEKEEPING SECTION

A CASE-SHEPPERD-MANN PUBLICATION

Another G-E FARM WELDER Story

. . . the time-saver

"It's the time my General Electric Farm Welder saves me on repair jobs around the farm that counts so much with me," says Llewellyn Putnam who operates a large dairy farm near Sharon Springs, N.Y. "For instance, my milk cows frequently break the metal bars of their stanchions, and that used to mean a trip to town for me. Now, I can weld the break in the stanchion right here, and have the cow back in the stall in a matter of minutes."

And, ever since Mr. Putnam bought his welder last year from Selkirk Hardware, Cobleskill, N.Y., he has been saving time and money by making economical, on-the-spot repairs on his dairy and crop tools.

"Besides, it's easy to use this welder." says Mr Putnam. "I learned quickly, and so did my sons, Gene and Douglas. Together, we've built an all-metal workbench for heavy jobs, and we're just about to start on an all-purpose elevator."

"Counting the time and money it saves me on big jobs, as well as on all sorts of little odds and ends repairs, I figure it won't be long before the welder has paid for itself."

Mr. Putnam's experience is not unusual. Hundreds of farmers all over the country can tell similar stories about their G-E Farm Welders. Stop by your nearest G-E dealer's soon, and investigate the welder for yourself. You'll find it compact, easy to use, and priced as low as $152. Or, mail the coupon for a pamphlet describing the welder in greater detail.

Apparatus Department
General Electric Co.
Schenectady 5, N. Y.
Section A 669-68

Please send me a copy of your welder pamphlet, GED-1163.

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Address.....

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My dealer's name and address is.....

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GENERAL ELECTRIC

REA CO-OP HI-LINES

News About and for Member-Consumers of R.E.A. Co-operatives

MAY 1948 NUMBER 5

4-H and F.F.A. on PARADE

SEVENTEEN-YEAR-OLD Gayle West of Hall County, Tex., used electric power in putting his dad's farm on a mechanized basis. It helped him to win a national award in the 4-H Better Methods Contest at the National 4-H Club Congress in Chicago.

Gayle worked hard for his prize—a $200 scholarship and a free trip to Chicago. He installed an electric fence and an electrically driven feed grinder, wired the farm shop and hen house and put in an automatic time switch in the latter. At Memphis High School, where he is a senior, he demonstrated to a large audience the advantages of electrical brooding. His parents, members of the REA-financed Hall County Electric Cooperative at Memphis, say they have saved much time and work because of Gayle's job in electrifying their farm.

Another national contest winner is D. L. Manly, Jr., 18, Sharpsburg, Ky., who won top honors in the 1947 Farm and Home Electrification Contest, sponsored by the Future Farmers of America. He wired 6 houses, 5 barns, 28 outbuildings on 10 neighboring farms; built an electric chick brooder and an electric rat and mouse killer, and repaired and serviced dozens of items of electrical equipment. His father's farm is served by the Fleming-Mason Rural Electric Cooperative, Flemingsburg, Ky.

Youths living on farms served by co-op lines were State 4-H contest winners in 14 other States. Here they are with their achievements:

H. Lee LeCates, 17, of Laurel, Del. (Delaware Electric Cooperative), simplified the feeding of his laying flock and 10,000 broilers by installing an automatic watering system and a feed carrier.

Rhonwyn Lowry, 17, Moultrie, Ga. (Colquitt County Rural Electric Company), conducted 30 "better lighting" demonstrations before an audience of about 1,900; helped install a pump and water system, that saves 20 days labor, 60 miles walking and 9 tons lifting in a year. She was an alternate national 4-H winner.

Alfred DeCap, 20, Erie, Ill. (Farmers' Mutual Electric Company), installed a watering system for his laying hens that saves walking 61 miles, and pumping 6,570 gallons of water per year.

Bill Gfeller, 18, of Junction City, Kans. (D. S. and O. Rural Electric Cooperative Association), does repair work for his own and neighboring farms with an efficient workshop containing two welders, electric saw, paint sprayer, press and compressor.

David Joe Duvall, 16, of Smithfield, Ky. (Shelby Rural Electric Cooperative), found it possible to care for an additional six cows with time saved after he began electrical milking.

Beth Denton, 16, Bernice, La. (Claiborne Electric Cooperative), found that electric ironing saves walking 22 miles and lifting 13 tons in a year. Beth irons for a family of nine, so electricity is a big help to her.

Jerry Swearingen, 15, Mount Vernon, Mo. (Ozark Electric Cooperative), made a poultry water warmer, installed fluorescent lights, installed an electric fence and power saw, installed a water system, and repaired workshop switches. His 21 electrical demonstrations have been presented to more than 1,000 persons; his electrical fence exhibits at county and State shows have received numerous awards. Jerry was named alternate national winner in the 4-H contest.

James H. Pollard, 15, Nehawka, Nebr. (Eastern Nebraska Public Power District), installed a hydrant and water pump to water his chickens more efficiently; the equipment paid for itself in 6 months and made him an extra $80 profit. Now he can care for an extra 50 hens.

Cleo Johnson, 17, Lake Arthur, N. Mex. (Central Valley Electric Cooperative), found that automatic washing eliminates lifting 35 tons of water and walking more than 10 miles in a year.

Imogene Rayfield, 18, of Wadesboro, N. C. (Pee Dee Electric Membership Corporation), compared a range to a wood stove, found that the range saves 16 hours of work per week, cuts fuel costs, and cooks better.

Eugene Ross, 17, Warner, Okla. (East Central Oklahoma Electric Cooperative), increased dairy efficiency by 40 percent by motorizing the separator, and rearranging the dairy lay-out so that the milkhouse and separator room adjoined the dairy barn. His parents plan to add four more cows which can be cared for with the time saved. Eugene was named alternate winner on the 4-H national award list.

Carlton D. Buckles, 19, Salters, S. C. (Santee Electric Cooperative), installed electric fence and water pump to aid better livestock grazing. He also converted a gas-heated chick brooder to electricity, earned $1,240 in 4 years of 4-H work.

Betty Tickle, 15, Newbern, Tenn. (Forked Deer Electric Cooperative), used an electric water pump to save 34 tons of lifting, and 29 miles of walking in a year, and an ironer to save 26 days of hand ironing.

Mark Hague, 21, Highmore, S. Dak. (waiting for power from the Ree Electric Association), put in a new pump and water system; says his new method for watering 80 feeder pigs will save fourteen 10-hour workdays a year.

Nine other young people living on co-op lines were State winners in the FFA contest. Here they are:

Paul Reynolds, 17, Hoxie, Ark. (Craighead Electric Cooperative Corporation), wired the farmhouse, installed 77 ceiling outlets, 62 convenience outlets, 66 two-way switches, and 3 three-way switches. He plans to install an electric hay hoist.

Coleman Ellsworth, 18, Tunbridge, N. Dak. (waiting for power from Baker Electric Cooperative), installed lights in his school dairy laboratory and wired his home and shop.

C. H. Sutton, 17, Cleveland, Ga. (Habersham Electric Membership Corporation), ran an electric line from his house to the chicken house to provide lights for his 2,000 broilers. He installed an electric water pump, and services and maintains all electrical equipment on the farm.

Arnold Kienas, 17, Kalispell, Mont. (Flathead Electric Cooperative), made simple repairs on electric motors and appliances in the high-school farm shop. At home, he installed lights and a water system, five switch boxes, air compressor, and grinder.

Bill Smith, 18, Peachland, N. C. (Pee Dee Electric Membership Association), wired the community cannery, and the high-school forge and welding shop. He saved his dad $125 by helping install electrical equipment in their new abattoir. He also installed barn lights on the farm.

James E. Thompson, 18, Eleva, Wis. (Trempealeau Electric Cooperative), wired the garage, installed a yard light switch, and assembled an electric jigsaw and power saw in the high-school shop.

Hugh Jack McLeod, 17, Kinston, Ala. (Covington Electric Cooperative), wired chick brooders for his dad and neighbors, wired the garage, and helped install bathroom lights and fixtures. Biggest job, however, was wiring a school building.

Benny Lee Short, 15, Wheatland, Wyo. (Wheatland Rural Electrification Association), built a 250-chick brooder, and installed a home water-system pump. He overhauled farmstead wiring, and installed a water system and milker.

Lewis Pearson, 18, New Effington, S. Dak. (Traverse Electric Cooperative, Wheaton, Minn.), replaced a gasoline motor on the milker with an electric motor, installed a yard light, 11 sockets in the house and 9 in the barn.

Editor's Chat

VISUAL MISEDUCATION

Recently an appeal was made for several hundred thousands of dollars of taxpayers' money for visual education equipment for New York schools. Many schools have slide and motion picture projectors. You may have them in your country school.

Seeing is one of the best ways of learning. The Army found that out during the last war. Visual methods were widely used in military training. Many agencies now produce excellent educational slides and movies. Some are tied in to specific courses as geography. In studying a country, the student sees something of the people, products and terrain. It makes the course interesting and much more realistic. Slides and films are especially helpful in studying new things in agriculture. We heartily approve visual education.

While approving, I would also like to sound a note of caution to teachers and parents. Let me explain.

We have become a nation of movie goers. We like to be entertained. We listen to the radio, hours on end. It's mostly easy-to-take stuff: soap operas, contest and comic programs, crime and mystery stories. Some surveys indicate that 70 to 80 percent of newspaper readers read the comics, while perhaps less than 25 percent read items of serious news.

At the recent Herald-Tribune youth conference in New York, high school students from the Scandinavian countries, British Isles and Australia criticised our schools and youth for not getting down to serious matters, for having too little respect for teachers and schools, and for a lack of real fundamental education. These students had lived in American homes and attended American schools for periods up to several months. The criticism was friendly.

Perhaps we should pause and consider. When we install visual education in our schools, let's be sure it is not just a means of entertainment. Be even more sure that it is not used as a lazy method of teaching and a lazy substitute for study. One can watch a cow milked a thousand times, but unless he actually squeezes the teats he will never learn to milk. There is a possibility of being visually miseducated without knowing the multiplication table or how to write. Flabby brains. We should use visual education but use it as a supplement to good, hard old-fashioned study which will strengthen our mental "muscles".

THE COST AND JOY OF LIVING

Fifty-nine cents to do the family weekly wash! That is the average of a Cornell survey reported in the Housekeeping section. And the author says it would cost more with new electric equipment. It would.

That makes me think. Maybe it makes you think, too. Is it worth it?

We have changed a lot in 40 years. Nearly everything we do costs more than it used to. That wash. You may remember when you did it on a wash board in wooden tubs with water pumped by hand, carried from the well, heated on top of the stove on a wood fire. The money cost was much lower. We had less money. Tomorrow you will be using an automatic washer and a lot more electrically heated water for washing and rinsing.

Sometimes we compare the costs of cooking with wood, coal, oil, butane and electricity. Some may be cheaper. It is also much cheaper to walk barefooted than to ride in a car.

Are you thinking? Then think of this. We could live in log houses, cook on open fires, carry water from the creek, go to town once a month through the mud on horseback. We could use walking plows, and cradle and flail the grain. But we don't!

Every time we improve our methods of production and our standards of living, we reduce labor, improve products, increase our income or get greater joy from living. And don't say I'm mixed up when I mention washing machines and ranges along with plows and combines. I'm not. The farm women have much to do with farm production, health and happiness.

One cannot always measure values by just comparing costs. The cost must be considered in relation to returns. Returns in money, health, labor saved—yes. But be honest. When it's all summed up, a good part of the returns from that tractor, field baler or washing machine is in the JOY OF LIVING AND FARMING WELL.

Geo. W. Kable

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K. H. GORHAM, *Business Manager*

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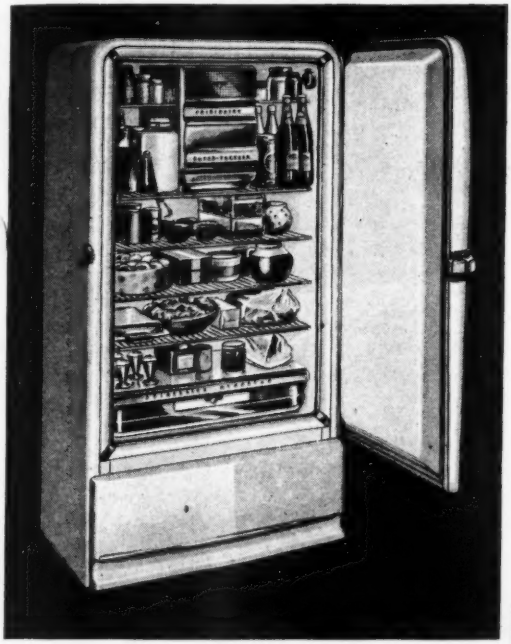
THIS MONTH'S CATALOG OF

FRIGIDAIRE PRODUCTS FOR THE FARM



A Really BIG Refrigerator— Holds Up to 46% More Food

You'll say a farmer's wife must have helped design it, there's so much more room for everything—and in practically the same floor space, too.

Notice the big new Super-Freezer for frozen foods; glass-topped, full-width Hydrator for fruits, vegetables. Quickube Trays give instant ice service. Far more shelf area—more space between shelves, too—than you find in regular-type refrigerators that *look* just as big on the outside. So, you see, you're really getting more storage space for your money.

Powered by the Meter-Miser, simplest cold-making mechanism ever built. Oiled for life; sealed in steel; backed by 5-Year Protection Plan. *Only Frigidaire has the Meter-Miser!*

Model MJ-11—11.5 cu. ft. capacity: 22.7 sq. ft. shelf area. 4 single Quickube Trays, 1 double-width. Aluminum Multi-Purpose Tray. Hydrator holds 26 qts. Cold Storage Tray. Exterior, long-lasting Dulux; interior, Lifetime Porcelain with acid-resisting floor. Over-all dimensions: height, 65¾"; width, 34 7/16"; depth, 28 9/16". Also available in 6, 7, 9 cu. ft. sizes.

More Frigidaire Refrigerators Serve In More American Homes Than Any Other Make

2-Oven Frigidaire Electric Range →

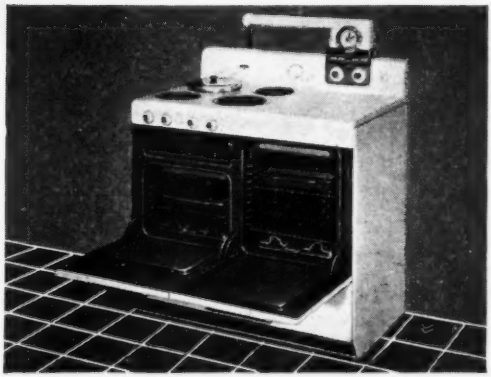
HANDY! Two complete ovens, each with broiler. Bake hot breads, cakes, pies in one oven while roasting meat or baking vegetables in other.

FAST! Radiantube Units start heating the *instant* you turn switch. Even-Heat Ovens reach baking heat in 5½ minutes or less.

FULLY AUTOMATIC! Time and temperature signals save time, trouble. Cook-Master Clock Control cooks oven meals while you're away or busy with other tasks.

SAFE! No fuel or flame. No smoke, soot, ashes.

Model RJ-70. Surface units have 5 exact heats. Thermizer (deep-well) Cooker. Smokeless type broiler. Full-width storage drawer. All-porcelain finish. 5 other models. Over-all dimensions: height (to cooking top), 36"; width, 40"; depth, 25¼".



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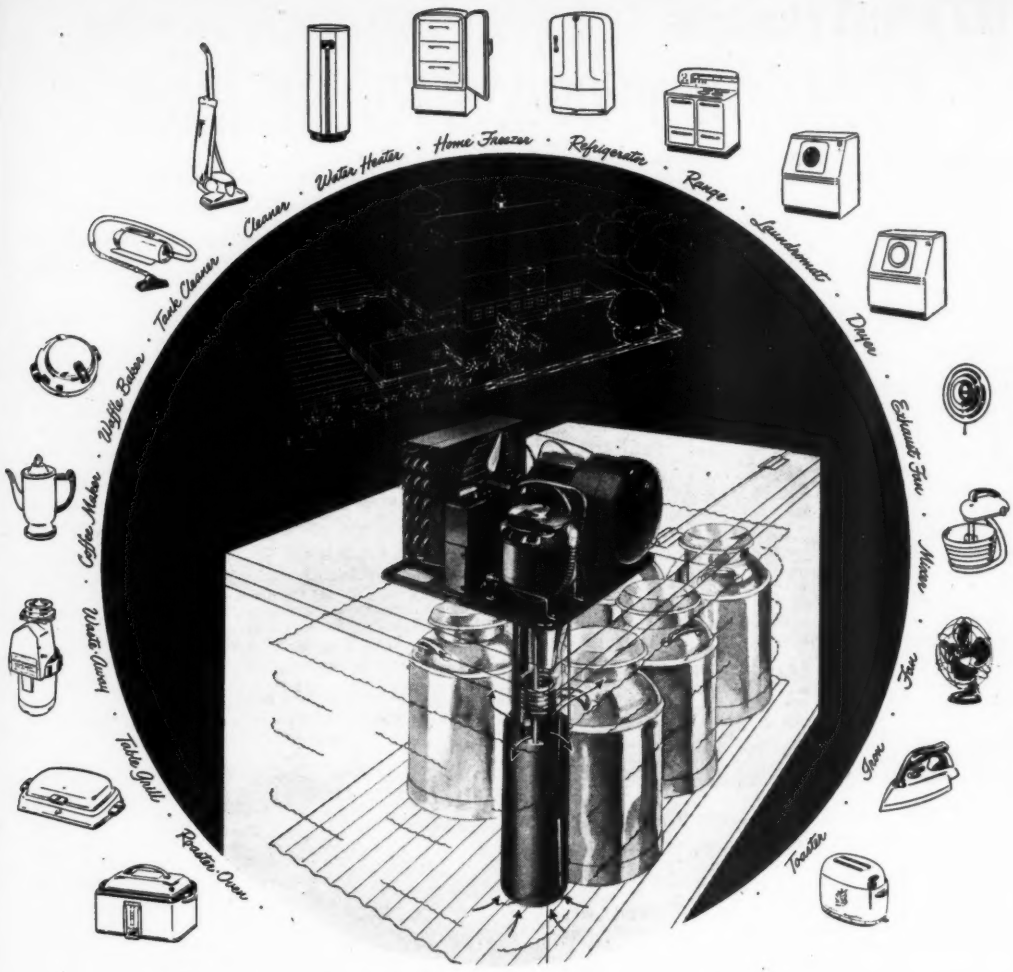

Milk cooled at lower cost . . . with Westinghouse MILK COOLERS

Actual tests prove Westinghouse Milk Coolers cool your milk to 50° or lower at half the cost of cooling with ice . . . at 23% less than other average-type electric milk coolers. Cool it on the double-quick, too, thanks to the *Forced-Circulation* which cools the water bath, the milk cans and the milk in the cans much faster. These efficient Westinghouse Milk Coolers are economical to use, economical to maintain. They stop rejects, conserve the profits from your herd. The heart of the Westinghouse Milk Cooler is the dependable, trouble-free Drop-In Unit. It is Hermetically-Sealed against dirt and moisture and backed by the 5-Year Protection Plan. See these Milk Coolers, and other members of this famous family of appliances, at your Westinghouse retailer's, now.

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ABC NETWORK

ELECTRICITY ON THE FARM *Magazine*

ELECTRICITY: *Versatile Energy for Many Farm Uses—Power, Light, Heat, Electronics.* Easily adapted, started, controlled: automatic. Labor doer and saver, money maker, and product improver and increaser. Used intelligently, electricity changes the whole aspect of farm life and production.

Lightning Protection

37 Percent of Rural Fire Losses are Due to Lightning. How to Protect Against It.

LIGHTNING causes 37 percent of our farm fires, according to the National Board of Fire Underwriters. The next nearest cause is chimneys, flues, cupolas and stacks with 11 percent. The point is that with an annual loss of $90 millions from farm fires, lightning is something to guard against. In addition to causing fires, lightning kills many people and much livestock.

Lightning is an electrical discharge between clouds and earth. Under favorable atmospheric conditions a static charge of electricity is built up on clouds. When the potential (voltage) difference between cloud and earth becomes great enough to break down the resistance of the intervening air, a discharge takes place. This may be a lightning stroke, or it may be invisable leakage currents to earth. The important thing is that the discharge takes place between *cloud and earth* and that it follows the path of least resistance.

Path of Least Resistance

That path of least resistance may be to a grassy knoll underlain with moist soil. It may be to a wire fence going over a hill or to a high tree filled with sap. That moist wood is a better conductor of electricity than air. High objects offer a lower resistance path because they are closer to the clouds. Metal offers less resistance to the flow of electricity than wood, so a copper or steel wire of adequate size running to the top of a tree with the lower end grounded in moist soil would probably save the tree from destruction by lightning.

That brings up the question of lightning rod protection of buildings. There was a time when the lightning rod salesman was considered a gyp. That time is past. Lightning protection is now based on scientific knowledge. The Board of Fire Underwriters says "It is an undisputed fact that complete and economical protection from lightning can be secured when lightning rods of the right size and materials are properly installed on every building."

Rods must be of the correct height from the roof to prevent fire from the flash. Conductors should be made of materials such as copper and galvanized iron which are not subject to corrosion and rust and which have sufficiently high electrical conductivity. Conductors must be carried down to good contact with permanently moist earth. The number of ground contacts differs according to the soil and the structure, and varies from a minimum of two to an interconnected series completely surrounding the protected premises. Indoor metal tracks for hay and manure should be bonded to the system or independently grounded. This is true also of metal roofs and BX or metal conduit running to the top of the barn. Be sure also that the grounds on your electrical wiring system are good—down to moist earth and not corroded; and that the connections to the rods are tight.

Ground Wire Fences

Protect livestock by grounding all wire fences. Connect grounding rods with each lateral wire of the fence and extend into the ground at least three feet. Fences joined to a building should be grounded at the post nearest the structure. In addition, the ground rod of the building should be connected to the fence.

To be assured of complete, properly-installed protection, use the Master Label Service sponsored by the Underwriters' Laboratories. Under this service cooperating lightning rod factories get frequent Underwriters' inspections of rods and fittings. In addition their installers and dealers must furnish signed detailed reports on each installation. These reports must be countersigned by the manufacturer and the property owner. A field staff inspects many of the installations to countercheck the signed reports. The Master Label is a guarantee that the lightning rod system is in accordance with the best modern knowledge.

Buddy Poppy

The "Buddy Poppies" we wear for Memorial Day are made by ex-service men who are patients in government hospitals. The sale of these poppies by the Veterans of Foreign Wars is endorsed by the President and many national organizations. It is done in cooperation with the Veterans Administration. Proceeds of the sale are used to alleviate distress among needy veterans and their families.

It's a small contribution for a very worthy cause.

Blessing's Corn and Hay Drier

Bin Type Drier Built in Barn Dries Corn Successfully With Furnace Heat and Air Blast. Being Used Also for Hay Drying

Left: Mr. Blessing standing by the tubeaxial fan in the furnace room of his corn dryer. The top of the furnace is shown in the foreground with jacket removed.

Below: View of the 22,600 cfm fan from inside the air chamber. Shelled corn on the floor was placed there for drying. This air chamber is large. The fan builds up a little pressure inside of it and the air is forced uniformly up through the corn. The walls of the chamber must be air tight.

By **ELWOOD F. OLVER**

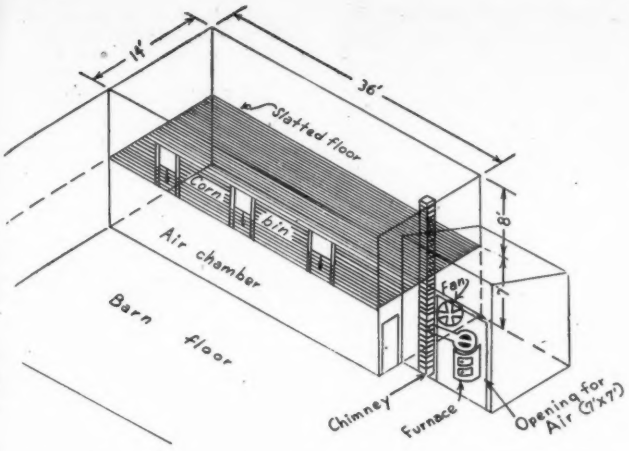
Last Fall Mr. W. H. Blessing, seed corn grower of Muncy, Pa., installed a corn drier in his barn. He dried 2500 bushels of ear corn from 25 percent to 15 percent moisture in 105 hours. He used only $12.60 worth of electricity and $30 worth of hard coal to do the job. The increase in the value of the corn more than paid for the fan and motor, materials and labor.

Mr. Blessing needed cribs. Instead of building new ones he decided to try drying the corn in his barn. It would give him faster drying and better control of moisture. He grows Sweepstakes variety corn; not hybrids.

One-half of the lower part of the barn had been used as a chicken coop. It was 7 ft high, 14 ft wide and the length of the barn, 36 ft. It had a concrete floor. This part of the barn was made into an air chamber. It was lined with Sisalkraft paper and the cracks were sealed with calking compound to make it air tight. The mow floor over the air chamber was removed and replaced with slats. The joists were 20 inches apart which was too wide a spacing for a wire mesh floor without extra supports. The slats used were 1½ inches square and spaced 1½ inches apart. That left half of the floor area open for air movement. Very few ears got caught between the slats.

A bin was built above the slatted floor and air chamber. It is 14 x 36 ft and 8 ft deep. The side and end walls of the bin were made tight. The sides were tied together by 3 - ½ inch cables

Looking up under the slatted floor which supports the corn. The slats are 1½" square. Note that there is little obstruction to the passage of the air.



Sketch showing the general layout of the corn dryer. The furnace room is built on the end of the barn. The three doors in the side of the bin slide up for removal of the corn.

3 ft up from the floor to give it added strength.

Equipment for Heat and Air

A furnace and fan room about 10 ft square was built on the end of the barn and provided with a cinder-block chimney. This room housed an ordinary house-heating furnace with jacket removed. A 5 hp tubeaxial fan was located in the wall between the furnace room and air chamber. The fan had a capacity of 22,600 cfm at ¼ inch static pressure (the maximum reached in this dryer). Air was drawn through a 7 x 7 ft opening in the furnace room wall. Because of the velocity of air past the furnace, the draft was increased rather than diminished as had been expected.

In operation, about a foot depth of corn was spread over the slatted floor and the furnace and fan started. After that about a foot of corn was added per day. The fan and furnace were only operated on sunny days during the daytime when the temperature averaged 62°. The furnace raised this temperature 12°. About six feet of corn was put in the bin in six days. When the last foot was put in, the dryer had been running 70½ hours. After 40 hours of operation the moisture content of the first layer put on the dryer had been reduced to 13 percent. From this it would appear to have been better to have all the corn in the dryer before the drying was started, or at least to have put it in faster. It would shorten the total drying time. After the 70½ hours, it took 34½ hours more to bring the top layer of corn down to 15 percent moisture. A total of 105 hours of drying time was needed to dry the 2500 bushels of corn.

Whenever coal was added to the fire or ashes removed, the fan was stopped. This was to prevent any possibility of fire.

Care was taken to remove husks from the corn, and the shelled corn was screened out on the elevator so the fine material would not interfere with the air flow through the corn. This fine material was put on the concrete floor of the air chamber to dry. A distributor was placed on the elevator to spread the corn over the floor to avoid pockets.

Results Pleasing

Mr. Blessing was well pleased with the operation of the dryer. In drying the 2500 bushels of corn 420 kw-hrs of electricity were used and 2 tons of coal, the total cost being under $40. While the corn was still in the field an offer of $2 per bushel (80 pounds, field cured) was made. After it was dried he was offered $2.75 per bushel of 56 pounds.

We understand that rats and mice will not live in an air stream. So after the corn was dried the fan was run for about an hour each month to chase out the rodents.

The bin is to be used this summer for drying soy bean hay. The bin is not large as a hay mow but with the extra heat and continuous blowing, the hay should dry quickly and be of extra good quality.

Several changes are to be made in the installation for the 1948 season. For the sake of safety and convenience, an oil burner will be substituted for coal in the furnace. A new opening will be made in the furnace room to take the air from outside instead of inside the barn. This is to get away from possible recirculation of the moist air. This air will also be funnelled in past the furnace to get the maximum benefit of the heat.

Commercial Cleaners For "L" Shaped Barns

In our March issue there was an article entitled "Gutter Cleaner for "L" Shaped Barn". That article stated that Frank Thome built a barn cleaner because there was no commercial cleaner available that would work in his "L" shaped barn.

It has been called to our attention that there now are commercial cleaners designed to operate in "L" shaped barns. We do not know how long ago Mr. Thome built his cleaner. Any farmer today who has an "L" shaped barn arrangement or any other arrangement, can probably obtain cleaners from manufacturers to fit his conditions. Such cleaners have been installed in barns where the gutters are far apart or close together, where the barns are long and where they are short. They can be made to discharge at one point or at several points.

If you have any problems regarding the installation of gutter cleaners for your particular barn, gutter cleaner manufacturers would be glad to discuss them with you.

Motor and hoist controls are suspended from the swinging arm. They can be reached from top or bottom, front or rear of load. The remote control for the motor is made up of a magnetic starter located at the motor, a three wire extension cord and a remote control push button switch. The push button switch is pulled down as the hay is unloaded. The chain between the carriage and fork keeps the hay from being lifted to the top of the mow when it is only partly filled. This prevents unnecessary packing of hay. A hay finisher is installed in this mow. As the mow is filled the chain is shortened and finally removed.

Hay Hoist Controls

Get Ready Now to Save Time in Haying. A Single Drum Electric Hoist Can Be Operated Completely From the Load

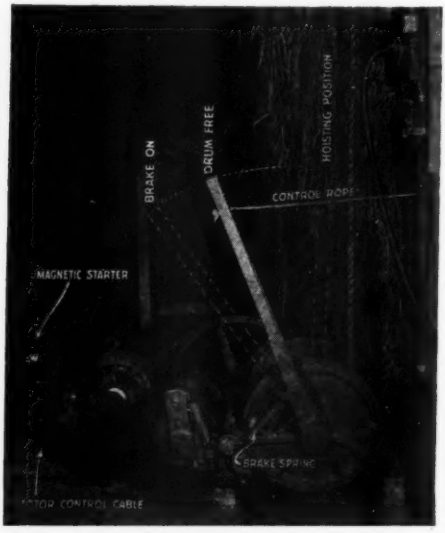
By J. B. STERE

IS YOUR haymaking equipment ready for the first haying weather? Have you made those changes that will save time, tugging, and hazards that you worried along with in past seasons? Don't wait until the first harvesting days to test, lubricate, and repair equipment or to rearrange your method of handling the hay. Studies have shown that when either equipment or method are not in full readiness much of the high feeding value of the first cutting is lost.

The electric hoist is the heart of the labor saving barn equipment for long hay. It is most valuable when its controls are conveniently located, simple and easy to operate. The three controls that provide complete manipulation of the hoist are motor control, hoist control, and fork control.

Motor control is used to start and stop the motor. It is not used to work the hoist. Being able to reach this control from any location on the load saves time and crawling. It is the one control most people overlook when installing a hoist, yet it is essential to the complete control of a hoist. When help is scarce and mowing is slow, the motor can be stopped between fork loads.

The Hoist control is usually made up of a clutch and a brake. Single drum hoists with single lever controls are easiest to operate. A counter-weight attached to the carriage and heavy enough to unreel the cable or rope from the drum must be installed with the single drum hoist. Only one control rope is then needed to operate the hoist. Pulling the rope attached to the control lever hoists the fork. Releasing the rope quickly, locks the drum. Releasing the rope slowly or pulling it when in the locked position places the drum in neutral so the counter-weight



Since McCarrells have installed complete and simple controls the return drum shown in the picture is no longer used. It took only one season of operating the double drum hoist to convince McCarrells that even in their large barn the single drum equipped with counter-weight is easier to operate. The portable 5 hp motor is also used on a hay finisher fan.

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IN THE KITCHEN

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"We have *Dial-ese* faucets in our new Crane bathroom, too—and on our new Crane sink. Things have gotten so easy, I really have time to enjoy life now!

"John gets a break, too, with running water on the place. He doesn't spend nearly the time watering the stock and cleaning up that he used to."

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can pull back the carrier.

Fork control consists of a trip rope securely attached to the trip lever. This control rope should be installed so the operator pulls it straight down. Pulling side-ways from the top of a load of hay is hazardous.

The accompanying pictures show how T. L. McCarrell and Sons, R. D. 1, Washington, Pa., installed complete and convenient controls for their single lever hoist.

Electric Heaters For Range Boilers

OCCASIONALLY one of our farm readers writes in to ask whether he can make an electric water heater out of his range boiler. It can be done. Before you attempt it, however, you should know what to expect of such a heater and the things you should do to make it operate efficiently.

First, let's size up a standard factory-made electric water heater of the pressure type. The inner tanks holding 30, 40, 52, 80, 100 or more gallons are made of galvanized steel like a range boiler, or of copper or stainless steel or of glass-lined steel. Completely covering these tanks is an insulating blanket of rock-wool or similar insulating material, usually about 3" thick. This is to save heat loss from the tank.

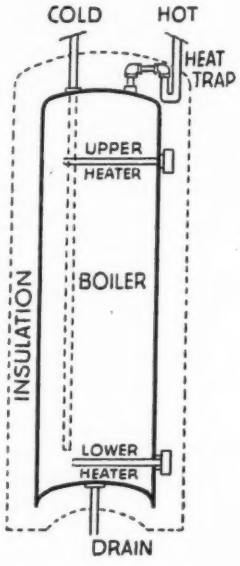
Tanks may have one or two heating elements. If only one, it is placed near the bottom through a threaded hole in the side of the tank and with the heater immersed in the water. These heaters are often called hairpin heaters because they are made of rods or tubes shaped something like a hairpin. It heats all the water above it. The hot water rises to the top of the tank.

Some water heaters have electric heating elements strapped to the outside of the metal tank. They are then covered with heavy insulating material.

If two heaters are used, the upper one is about ¼ way down from the top of the tank. It will heat only that water in the upper quarter of the tank. Because it has less water to heat, the heating will be faster.

Both heating elements have thermostats which cut off the electricity when the water reaches the desired temperature. The top heater heats a small amount of water quickly. The bottom one heats the entire tank, but does it more slowly. Usually only one heater will come on at a time. With a tank full of cold water, the top heater comes on first.

Two element water heaters are commonly used where the electric company grants a lower rate for off-peak (usually night) service. The bottom element is on the off-peak rate. The top one which heats a little water in a hurry, is on the regular metered rate.



The factory-made heater has one other essential part—a heat trap. The hot water pipe comes out of the very top of the tank. It is then turned down and back up inside the insulation to make a U. That keeps the hot water from traveling upward through the pipes in the house when the water is not turned on. It saves electricity.

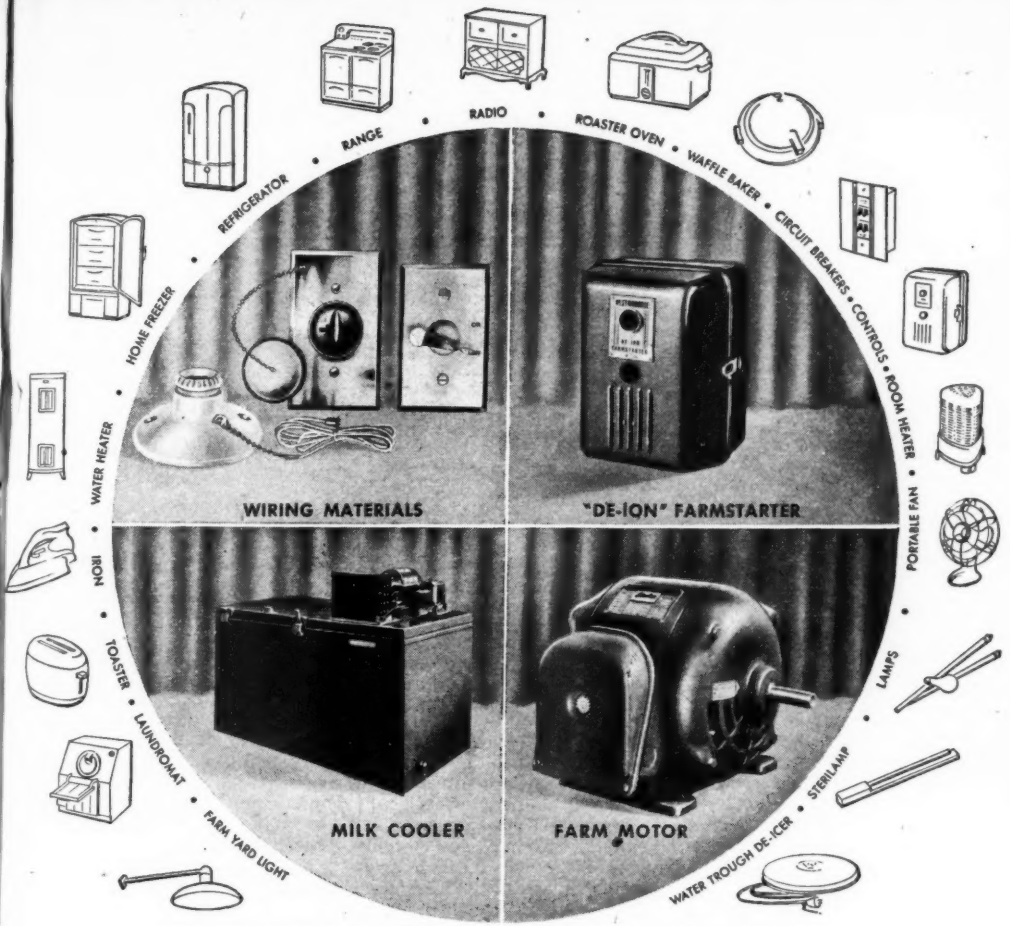
Now, back to the range boiler. You can buy hairpin heaters that will screw into threaded holes that are provided in the sides of most range boilers. These holes are smaller than in regular electric water heaters, so you must be sure to get special elements to fit those threaded holes. The elements may be had complete with thermostats and with Underwriters approval. Or you may use a side-arm heater. The side-arm heater heats the tank water very much the same as a coil in the range or furnace heats it. It is provided with the same hairpin heating element and thermostat described above. Water heaters of these types have been in use for many years.

Provide Heat Trap and Insulating Blanket

You now have the tank and the heaters. You should then provide a heat trap in your hot water piping and an insulating blanket to cover the entire tank and all the piping from the side-arm unit. If you do a good job, you will have an efficient water heater. The piping, putting in the heaters and applying the insulation can be done by a plumber.

A pressure relief valve should be put in the cold or hot water piping to the tank to release any possible excess pressure. Do not place a check valve between the water system pressure tank and water heater. The air cushion in the pressure tank is needed to take up the water expansion as it heats.

How much electricity is needed to heat water? Theoretically a 1000 watt heater will raise the temperature of 4.1 gallons of water 100° in one hour, or 5.1 gallons 80° in one hour. Practically, it will not deliver that much hot water to the sink. There is always some heat loss through even well insulated tanks and there is loss due to heating and cooling of pipes. Keeping the pipe runs short and



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using thin-walled copper tubing will save heat. With an uninsulated range boiler, the cost of heating water electrically would probably be double that with a well insulated boiler. With a 1000 watt heater in a 30 gallon boiler about 8 hours will be required to heat the water from 50° to 150° if the tank is well insulated; 12 to 16 hours, or longer, if not insulated.

You should always notify your power supplier before connecting a water heater. He may have special rules you must comply with. If the total wattage of your heaters is not over 1320 watts, it is permissible to plug them into a convenience outlet circuit—never a lamp socket. It is always best to have a special circuit to the water heater. If the heating elements are larger than 1320 watts, you must have a special circuit. Or if your power supplier grants an off-peak rate, you will need a special circuit and special meter.

Limbs Can Disrupt Service

To prevent disruption of your electric service, S. S. DeForest, agricultural engineer at Iowa State College, recommends that you keep tree limbs, bushes and vines from growing into your service wires between the meter pole, house or other buildings.

Their presence is likely to cause the insulation on wires to wear through, causing a short circuit and disruption not only of your own power system, but also of other line members.

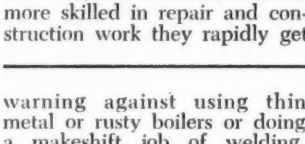
If the trimming is particularly difficult, call a lineman. They have equipment to trim high branches and to get into hard-to-get-at places, DeForest says.

Don't go beyond your own transformer when trimming, he emphasizes. That work is dangerous, and should be left to linemen who are equipped to work on high voltage lines.

Homemade Air Tanks

On page 20 of our March issue we described a "Portable Air Tank" made by Murray Bros. in Virginia. That article should also have contained a warning against using thin metal or rusty boilers or doing a makeshift job of welding. C. J. Grinn of Electric Service Maintenance Co., Bridgeport, Conn. has called our attention to the fact that these little tanks can blow up with explosive violence if they are not sturdily made to stand the air pressure. For example, an air tank 15" in diameter and 24" long, filled to 80 pounds per square inch has a total force of 28,800 pounds trying to tear the sides apart, and a force of some 14,000 pounds pushing on the ends.

Mr. Grinn says small air tanks with handles are made in Bridgeport and there are some 12" x 24" (9 gallon) stainless steel tanks tested at 400 lbs. available at about $8 as war surplus material.

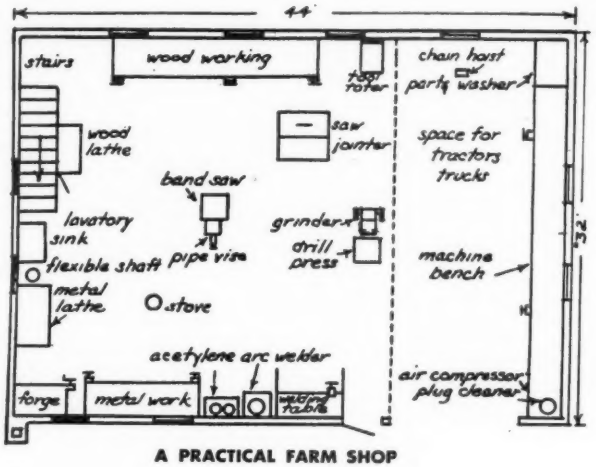


"Talk About Yer Sissys! Anytime I'D let a teeny weeny little wire keep ME from going places!"

Farm Shop Plan

Here is a plan for a practical farm shop taken from the book "Welding Helps for Farmers" published by the James F. Lincoln Arc Welding Foundation, Cleveland 1, Ohio. The plan was laid out by Harold E. Gulvin a New York teacher of vocational agriculture. It is the result of many years of experience in working in and examining farm shops. More equipment is indicated than most farmers plan to put in their shops. Mr. Gulvin observes, however, that as farmers become more skilled in repair and construction work they rapidly get more equipment.

Hand tools should be hung in marked places on the walls. Drawers under benches provide storage space.



A PRACTICAL FARM SHOP

Pipe vise, grinder and drill press are located on posts so long work can be handled. The portable tool toter holds wrenches, hammers, etc. for use on vehicles. A portable flexible shaft grinder is handy for preparing machinery to be welded.

Air compressor and arc welder are placed near the door so tires may be inflated and machinery repaired without moving the machine across the shop.

Size: 32⅛" x 20" x 16".
Weight: 300 lbs.

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Dial-lectric gives you the control needed to weld anything from thin sheet metal to a ¾" steel plate — *over a full range of 20 to 180 amps.* And the eight different P&H electrodes (each designed for a specific job) come with clear directions that make it simple to weld cast iron, spring steel, stainless — *any job you have!* Think of the money you can save on repair bills! And think of all the things you can weld to make work easier, and living more enjoyable on your farm!

Welder often pays for itself in one season

Avoiding a $60 repair bill, a South Dakota farmer welded a shattered tractor pedestal himself for less than 35¢ — saved several days and 500 acres of wheat he was harvesting. *For 18¢,* another farmer hard-surfaces his own plowshares, increasing their life 10 times at less than 1/10 the usual cost.

Saves 10 times cost on 1 job!
For less than 10¢, a Minnesota farmer saved a corn crop worth $2000. His picker hitch broke, but in an hour and a half he welded it, was back on the job — and got his crop in just before a heavy snowstorm. *For about 30¢,* a Wisconsin farmer welded a broken cast-iron pulley on his threshing rig — *right on the job* — and saved a full day's delay late in the season. Many owners earn extra cash doing repair jobs for neighbors with their P&H welder.

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Arthur Ward's Homemade Elevators

Litter Conveyor and Feed Elevator on a Maine Poultry Farm Save Time and Hard Work

LAST Spring when we were looking for poultrymen who had successfully used electric conveyors for cleaning hen houses, we received a long letter from Arthur N. Ward of Waterville, Maine. He gave a description of his homemade conveyor and also mentioned a lift elevator they were using. First we will tell you about the conveyor. Then we have a description of the elevator which interested us enough so we went to see it.

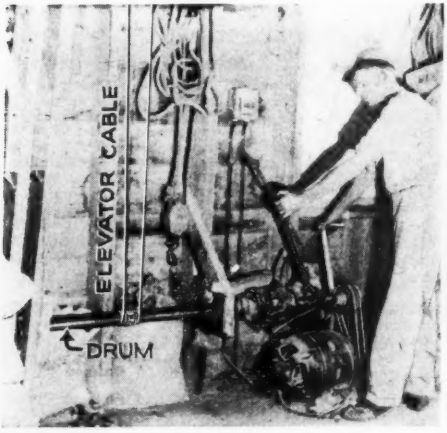
The Ward poultry houses are all three stories high. Cleaning starts on the first floor. The conveyor is put through a window with the outer end high enough so the manure spreader can be driven under it. The conveyor will handle pit droppings as fast as two men will shovel into it. It will also handle used litter. When the first floor is cleaned, a door in the second floor is opened and the droppings pushed through it into the hopper of the conveyor. The third floor is cleaned the same way with only one setting of the conveyor.

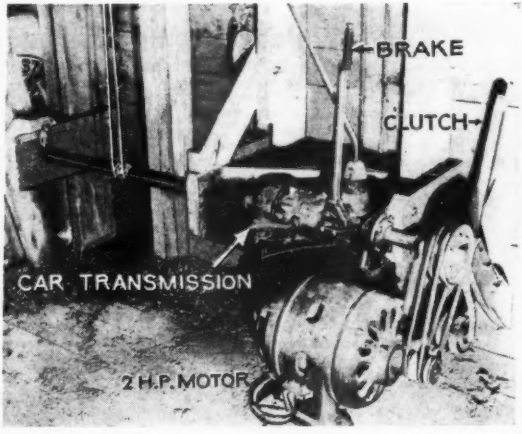
The conveyor is 14 inches wide, 22 feet long and the sides are 6 inches high. The chain and sprockets came from a discarded ensilage conveyor of the type that was in common use 10 to 20 years ago. A worm gear is used for speed reduction and the chain travels about 60 feet per minute. Power is supplied by two one-third horsepower motors coupled together. The conveyor without the motors weighs about 200 pounds. Two men can handle it. It would be much easier to handle if it was lighter, but it does save a great deal of labor.

This is all there is to the elevator. The 2 x 4 vertical guides on the first floor are removable to leave the first floor clear. The platform is notched and has cross braces that fit against the guides. Platform is kept level by the chains. It travels about one foot per second.

The feed elevator is a very simple affair. The platform is notched to fit over 2 x 4 inch upright guides. The guides are just set in place when the elevator is to be used and taken down when it is not in use. The platform is supported by chains attached to pulleys through which the hoisting cables run. There is one cable for each side. Both cables wind on the same drum.

The hoisting arrangement for the elevator is home made. It consists of a 2 horsepower motor driving a 2 inch tubular driveshaft which serves as a cable





Left: This is Mr. Ward operating the hoist. His right hand is on the belt-tightener clutch and left hand on the brake. The hoist is at the side of the room about 15' from the elevator shaft. Cables run through guide pulleys to top of the shaft. **Right:** The 2 hp motor with double V-belt drive through old Plymouth transmission. Pulleys: 3" on motor; 6½" on transmission. The V-belts are tightened by the idler on the hand lever which serves as a clutch. The transmission also includes a brake. The hoist drum is a 2" hollow drive shaft.

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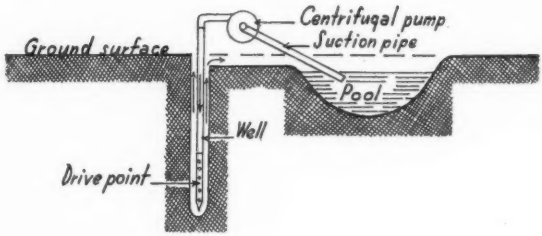
reel. The speed reduction is accomplished by means of V belts and an old Plymouth transmission. The transmission has a brake on the driveshaft. A substitute for a clutch is made by allowing the V belts to slip on the pulleys until an idler on a lever is forced against them to take up the slack. With this clutch and brake operated by hand levers, a man has good control of the elevator.

The cables used are 5/16 inch steel plow cables. They are attached at the center of the 2 inch cable reel and they wind toward the outer ends so that each cable moves at the same speed. Each cable runs to the top of the elevator shaft, over a pulley, down through a block attached to the elevator chains and back up to be fastened at the top of the shaft. The elevator speed is 50 to 60 feet per minute. It handles 600 pounds of feed.

Two men are required to operate the elevator. One operates the controls. The other sees that the platform slides smoothly on the guides and then goes up and places 2 x 4's across the opening on the floor where the platform is to be unloaded. The unloading is done right in the laying house so it is necessary to have a man there to keep the hens away.

Mr. Ward does not claim that his elevator is as speedy or as convenient as the more elaborate and permanent installations. It does save him and his son Bob a lot of heavy lifting and carrying.



Jetting Farm Wells

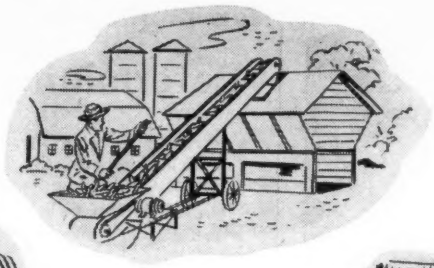
Dr. D. J. Cederstrom of the U S Geological Survey says it is sometimes possible for a farmer to dig his own shallow well with a water jet. The effectiveness of a jet depends on the nature of the material dug through. If it is soil whose particles are light enough to be carried upward with a stream of water, it can be done. The faster the water moves, the larger the particles which can be carried out.

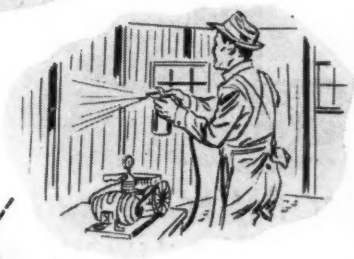
The method suggested by Dr. Cederstrom is to use a drive point with reasonably large holes near the lower end. Force water down inside the pipe and out the drive point by means of a small centrifugal pump. A centrifugal pump will handle sandy water and will develop considerable pressure. As the soil and sand is washed out the point is driven down.

Water for the pump may have to be hauled, or rain water caught. Store it in a little pool close to the well. Connect the open top of the well hole with the pool by a small ditch. The dirt and water which is forced up out of the well around the pipe by the pump will flow into the pool. The heavy dirt will settle out in the pool and the top water can again be pumped down into the well.

Sections are added to the drive pipe as the hole goes down. The pipe and well should be thoroughly pumped out to remove the sand and dirt when the well is completed.

Dr. Cederstrom says it is better to locate a well on broad flat land than on hilly ground. The land need not be low land. Flat land is just more likely to have a reservoir of water under it. It is not possible to have a well in fine silt. It is necessary to go down through it to coarser water bearing strata.





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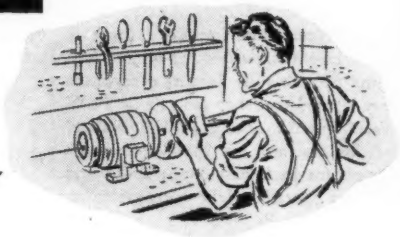
Fairbanks-Morse Farm Motors



Now you can repower that grinder, sheller — your workroom tools and other equipment — with genuine Fairbanks-Morse single phase motors! These long-time farm standbys are ideal for mechanizing hand-operated equipment and/or replacing worn-out, inefficient motors. Used wherever electric power is needed on your farm. Once installed, they ask no pampering—you can forget them except for occasional re-oiling. Write for address of nearest dealer or branch office. Fairbanks, Morse & Co., Chicago 5, Illinois.

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New Methods of

Determining Moisture In Hay

One of the farm problems in connection with the mow finishing of hay is to know when the hay is dry enough to be safe in the barn. It is also desirable to know the amount of moisture in the hay when it is put in and at different stages of finishing. Dr. S. T. Dexter of the Section of Farm Crops, Michigan State College, East Lansing, Mich., has been doing something about his. In the November 1947 Mich Ag Exp Sta Quarterly Bulletin two of his articles were published. Article 30-21 gives A Simple Method of Estimating Whether Hay or Grain Will Keep In Storage. Article 30-22 describes A Method for Rapidly Determining the Moisture Content of Hay or Grain. We will give you the high points of the two methods.

Will the Hay Keep?

Loose hay in a well ventilated mow will usually keep if the moisture content is down to 25 per cent. Straw should be 18 per cent; wheat, oats or barley 14 to 15 per cent. Now Dr. Dexter has found that these materials containing those safe percentages of moisture all have something in common. Put them in an air tight container and the air inside that container will have a relative humidity of about 85 per cent. He has also found that pure, fine, dry table salt will remain dry unless the relative humidity is above 75 per cent. So he puts a sample of the hay in a quart container (grain in a half pint container) with a spoonful of table salt and shakes it 100 times. Then he shakes the salt into the lid of the container and looks at it. If it is damp enough to stick together the hay probably contains 25 per cent of moisture or more. If the salt is dry, the hay is safe. If you are doubtful about the dampness of the salt, shake it another 100 times with the hay.

There are several things you must do in making this test. *Select your sample carefully* to be sure it represents what is in the mow. Twist the hay to break the stems. Put it in the container loose enough so the salt will shake through it readily. The salt must be pure; no adulterants or driers in it. You should use a wax-impregnated cardboard container with a tight lid, like a cylindrical ice-cream container. *Glass, tin, or wood containers will not do.*

Dr. Dexter's paper gives more details and tells of other salts which may also be used.

Farm Moisture Determinations

In making moisture determinations in the laboratory, a sample of hay is weighed, then dried in an oven and weighed again. This drying and weighing is continued until there is no more loss of weight in successive dryings. The percentage of moisture is the weight of the water removed divided by the weight of the sample before drying.

To determine moisture in hay on the farm, you do it the same way. Only Dr. Dexter has worked out a farm oven that you don't have to buy. He opens up the rear end of a muffler on a tractor or car. The sample of hay is shoved into the big part of the muffler which acts as the oven.

You will need a little flat-topped spring scale that reads in grams up to 500 grams; also a glass thermometer that reads up to 300°F. (Photographic supply stores may have them.) You make a hay holder from a 2-quart or gallon size tin can by cutting off both ends and cutting along the side seam. That leaves you the shell of a can that can be squeezed together to fit into the muffler.

Select your hay sample carefully. Twist it to break the stems. Slip the hay holder over the sample and cut off the protruding ends. Weigh the sample in the holder. Subtract the weight of the holder. Have your motor running so the muffler is hot. Then shove the hay sample in the holder into the muffler. Speed the engine for 15 seconds.

(More on page 22)

The Refrigerator that dared to be different . . .

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America's Finest Line Of Home Appliances

Packed With Revolutionary Postwar Features!

YOU get more storage space, more freezing speed, more of everything you need, in the same kitchen space as before – with the new Hotpoint Refrigerator! Kitchen-planned by Hotpoint – years ahead in its revolutionary postwar design, this brilliantly different new Hotpoint is packed with exciting features for greater convenience, increased economy and better food preservation.

See the new Hotpoint before you buy any refrigerator. Your nearest Hotpoint dealer is listed in the phone book.

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Outstanding Features for Greater Convenience, Economy, Efficiency!

1. More compactly engineered sealed-in-steel mechanism freezes ice up to 58% faster.
2. Larger meat compartment.
3. Up to 50% greater storage capacity.
4. Super-Speed freezer for storing frozen foods.
5. Two Hi-Humidity chambers for fruits and vegetables.
6. New butter conditioner with temperature control.

Everybody's Pointing to

Hotpoint Refrigerators

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Motorized Post Drill

One of the many things that Clarence Hallberg, Hebron, Indiana uses electricity for is drilling holes. Until recently this post drill was hand operated. It was slow work drilling holes. Now the ½ hp shop motor is placed on the shelf above the drill to do the work. There is good light on the drill from the inexpensive lamp at the upper left with a background of boards painted white. Tools are in good order. Note also the small electric drill for portable use.

GEORGE R. HARRISON

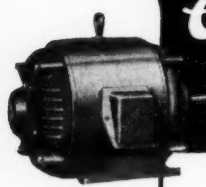
Determining Moisture in Hay

. . . . . (Here from page 20)

then let it idle briskly for another minute. With gloves, pull out the hay holder and turn it end for end. Speed engine, then idle for a minute. Insert the thermometer into the center of the sample. It should register about 300°F. Speed the engine if necessary to make it hotter. Remove the holder and hay and weigh it, being careful not to lose any of the sample out of the holder. Repeat the heating and weighing. Keep repeating until there is no more loss in weight. A little browning of the hay does not hurt. Compute the percentage of moisture as described.

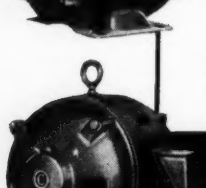
Century FARM MOTORS

Save Work—Save Manpower—Bring You the Convenience of Production Machinery



Century Repulsion Start, Induction Run, Brush Lifting motor

Century Capacitor motor



Century Squirrel Cage induction three phase motor

Century motor driven equipment such as feed grinders, shellers, grain fans, can often be operated by one man instead of two or three men necessary by hand methods. Water pumping can be made completely automatic. Century motor powered workshop equipment makes sharpening and repair jobs easier and they can be done in less time.

Century farm motors are ruggedly built to provide power at the snap of a switch. They are built in a wide range of types and sizes to meet all your requirements. Century motors have been serving the farmer for 40 years.

Specify Century motors for all of your electric powered equipment and appliances.

536

CENTURY ELECTRIC COMPANY

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Century C MOTORS

"Friends of the Land"

We are a little skittish about the many special "weeks" and "days" that besiege us. But here is one we are in favor of. The first week in May is "Friends of the Land Week". If the week has passed when your magazine comes, the purpose of the week still exists. It is to enlist people, both country and city to be "Friends of the Land". These "friends" are banded together to save and restore our soils, forests and water supply which contribute to the health and welfare of all our citizens. Special programs have been arranged for this week. They focus attention on the great need for preserving our natural resources.

We have been a wasteful people. Much of our good surface soil has been lost; forest cover has been thoughtlessly destroyed; streams have been polluted and lands flooded by wasteful practices. You can be a friend of the land on your own, or you can join with other "Friends of the Land" in an organized educational effort. The post office address is just "Friends of the Land", Columbus, Ohio.

New Jersey Way to Clean Eggs

Egg cleaning, which many poultrymen put first on the list of things they hate to do, has been made almost magically easy by several New Jersey farmers, according to Leslie M. Black, extension poultryman at Rutgers University.

The new way uses water in which a detergent is dissolved. The detergent is the common grocery store item which women now use to wash dishes.

Eggs are collected in wire baskets as usual and carried to the cellar or egg room. Enough 140 to 160 degree water to cover the egg basket is placed in a clean galvanized ash can or other container. Detergent is dissolved in the water at the rate of a teaspoonful to the gallon.

A basket of eggs is dipped into the hot solution so that all eggs are covered, and then set on the floor to drain. All filled baskets are dipped this way. As

AIR POWER

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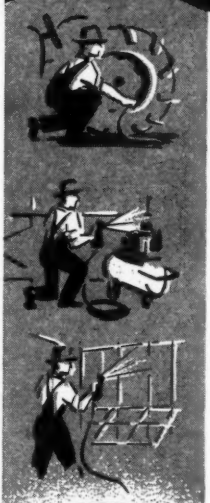
THE BEST "Hired Man" YOU EVER HAD

RUGGED AIR COMPRESSORS ON WHEELS. 1/3, 1/2 AND 3/4 H.P. COMPLETELY AUTOMATIC.



PUT AIR to work on your farm. You can use this Wayne Air Compressor anywhere electric power is available and save labor, time and money in scores of farm operations. Its a Packaged Unit of Power which can be used to inflate tires, spray paint, insecticides, or disinfectants, and for high pressure lubrication, or operating small tools. Wayne Units are built for years of trouble-free service. Write today for bulletin.

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many as 20 or 30 can be dipped in the same solution.

When all baskets have been dipped, the first one is dipped again and placed on an elevated stand. A hose connected to the hot water and equipped with a hand-controlled spray valve is used to wash the loosened dirt from the eggs by applying the hot spray to all sides of the basket. All baskets are re-dipped and sprayed with clean water in turn.

Baskets are then placed in the cool room to dry until the next morning when eggs are graded and packed. A few soiled eggs in the center of the basket which the spray could not reach are sometimes found. This dirt is easily removed with a hand buffer.

According to Black, this method of warm water washing improves the keeping quality of eggs even when stored. Hatching eggs are not harmed by the process. The "bloom" of eggs which poultrymen value so highly is said to be unaffected.

Observations made by poultrymen under their practical farm conditions are being checked at the Agricultural Experiment Station. According to Dr. Willard S. Thompson, head of the poultry department, laboratory tests have been started to find out if eggs cleaned with detergents store well for short or long periods, and if they hatch as well as dry-cleaned eggs.

Meet the **MOST VALUABLE HIRED HAND** *a farmer ever had!*

A BEAR FOR WORK . . . Yes, just push a button and in a matter of minutes your barn is completely clean . . . *all* manure, including nutritive liquids, loaded directly into your spreader.

TOUGH but GENTLE . . . The Rugged Crown Barn Cleaner is *built* to give you years of trouble-free service—*designed* to do the job carefully, without disturbing the cows.

HIGH SALARIED? . . . No, sir . . . for a few cents a day, the Crown Push-Button Barn Cleaner will take over the hardest, back-breaking job on the farm and do it better and cheaper than you can do it yourself.

You need this extra hired hand NOW . . . when your fields demand your time. See your Crown Dealer or write for full details today!

CROWN *Push Button Equipment*
FOR BETTER FARMING
MARATHON
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Dept. C-248 WAUSAU, WISCONSIN

How Big A Septic Tank?

If you are going to build a septic tank make it big enough. In general the recommendation is never to make any septic tank of less than 500 gallons capacity. This would be a tank about 6 feet long, 3 feet wide and 4½ to 5 feet deep. The liquid will fill the tank to only 4 feet deep. The extra foot is needed for the scum which rises to the top and for air space. For families of more than 5 people, add 100 gallons per person to the tank capacity.

Get plans for septic tanks from your State Agricultural College, State Department of Health or from the USDA. The best designed septic tank will permit the sewage to flow in and the clear liquified sewage to flow out without disturbing the surface scum or stirring up the sludge in the bottom of the tank. Passageways should be straight enough so they will not clog and so they can be easily cleaned.

Millions of Lamps

In the last three months of 1947 517 million electric lamps were shipped from American factories. Their value was about $57 million. This was exclusive of the 80 million Christmas tree lamps that were made.

—I'm proud I am a farmer!—

National 4-H Sheep Shearing Contest

The National Committee on Boys and Girls Club work has announced there will be a 4-H sheep shearing contest again at the International this fall.

If there are still sheep to be sheared in your neighborhood, this is the time to learn and get practice. Go to a shearing school or work with an experienced shearer. Electric-motor-in-handle shearing machines will be used in the contest.

For announcement, score card and list of prizes write to the National Committee, 59 E. Van Buren St., Chicago 5, Ill.

Trouble?
Try Reversing the Plug

Have you ever received a shock from a metal lamp stand, mixer or washing machine? Does your radio sometimes act up with more static than usual? Try pulling the plug from the wall outlet and reversing it. Yes, just turn it half way around and plug it in. That may correct the difficulty.

This tip comes from H. J. Miller, Electrical Engineer of the University of Pennsylvania.

Mr. Miller suggests that when you get the plug in so the difficulty is corrected, mark it. Use a red wax crayon or file a notch in one side of the rubber or plastic of the plug. Always put it in the socket the same way. Other sockets, of course, may be reversed.

The reason this sometimes corrects difficulties and saves immediate repair bills is that one side of your 115 volt circuit is grounded. Reversing the plug may connect the leaky wire to the grounded side.

Eventually the appliance or wiring may have to be repaired. It will be safe to use, however, and may give satisfactory service for a long time if plugged in properly each time.

Many Farm Phones

A recent report of the A T & T Co says 42 percent of American farms now have telephone service. The Bell System added 309,000 phones in rural areas last year.

HOW'S THIS
for doing a pesky job easier and faster?

Now, you can use electricity to save work and time on another important farm job. With the Hudson Rival "Lektrik-Spray" it's a snap to kill flies that bother stock and infest the barn. This sprayer gives a good insecticide extra killing power—sends it out in an atomized spray deadly to flies. Use your "Lektrik-Spray" everywhere—to kill flies, mites, lice, germs throughout your farm buildings. See your dealer for details on the electrified, scientific way to spray with the flip of a switch . . . *or write for "Lektrik-Spray" Folder.*

HUDSON
Tested and Proved
SPRAYERS AND DUSTERS
HAY TOOLS AND BARN EQUIPMENT
LIVESTOCK EQUIPMENT
FARM VENTILATION EQUIPMENT
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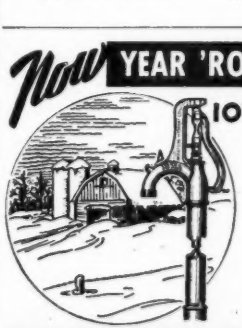
CHECK THESE FEATURES:

Saves Money—Tests show electrically sprayed insecticide does better job with no waste.

So Easy to Use—so light (only 9 lbs.)—even a youngster can use it. Saves work.

Built for Lasting Service. Has rugged motor, galvanized tank, chromium spray head.

Now YEAR 'ROUND OUTSIDE WATER SERVICE
IOWA FREEZELESS HYDRANTS



Have running water to your stock tank all year 'round . . . just raise the handle on the Woodford Iowa Freezeless Hydrant . . . and save time, work, MONEY:

- "Positive" lock lever cuts off water below frost line.
- Automatically drains hydrant case each time.
- Economical—simple, sturdy construction; fewer wearing parts; low upkeep.

Easy to install on ANY farm water system. Ask your local dealer NOW or write today for free circular.

WOODFORD HYDRANT CO., Des Moines 16, Iowa

The way your husband buys a truck . . .

He insists on dependability. He's fussy about performance. He knows from *experience* that the best piece of machinery is the best buy for him!

. . . will tell you why a SINGER* is the best buy for you!

You'll want to be just as careful when *you* choose a sewing machine. Only the most *reliable* make is worth your investment.

And that make is SINGER. For more than 95 years it has been the first choice with women the world over. It has proved its dependability in actual use.

There is no substitute.

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SINGER sells its machines only through SINGER SEWING CENTERS. Send for free catalog illustrating new models, and for address of the SINGER SEWING CENTER nearest *you*. Write to

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Now available at most good tool stores, this light, handy, efficient little bench grinder, simplifies a hundred sharpening, touch-up and grinding jobs in shops, garages, and kitchens. Powerful, air cooled 1/15 H. P. motor. Oil impregnated bearings, 1 fine, and 1 coarse 4½" x ¾" grinding wheels all in 1-piece cast aluminum housing. Complete with 5 ft. cord, plug built in switch, and rubber feet, ready for use.

Ask your SpeedWay dealer to demonstrate.

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Egg Transportation

Did you ever give a thought to how many eggs are damaged in rail shipments? It is estimated that three percent of the total number of eggs produced in the US are damaged in transportation to markets. Damage claims in New York City alone amounted to over a million and a half dollars in 1946.

Of interest to railroads, shippers and farmers, therefore, is a shock absorber for railroad refrigerator cars. It is made by the Monroe Auto Equipment Co. in Michigan. In a recent test an absorber-equipped car brought 17,520 dozen eggs to New York without a damage claims. A standard equipped car on the same train had 713 dozen damaged eggs.

Defrosting the Freezer

"Please tell C. K. Sturms, Arkansas, that I did try my wife's hairdryer to defrost the freezer (But I got most of the defrosting). I also tried space heaters, heat lamp and other heating devices.

"After much trial and error I came to the conclusion I would rather let nature supply me with the heat. That's free. I have to pay for kw-hrs for heating." Jos. S. Webb, Philadelphia Electric Co.

Mr. Webb uses his ordinary household fan for defrosting (See p. 34, Dec. 1947). He aims the fan downward inside one end of the box. Completes defrosting, cleaning and reloading in 1¼ hours.

Candlelight $200 a Month

The national average residential lighting cost is estimated at $1.25 a month. The equivalent in candlelight would stretch to $200.

According to a Twentieth Century Fund survey, cotton supplies more than three fourths of all fiber consumption in the United States, with wool and expanding rayon consumption accounting for most of the remaining fourth.

DUFFY'S CAVERN

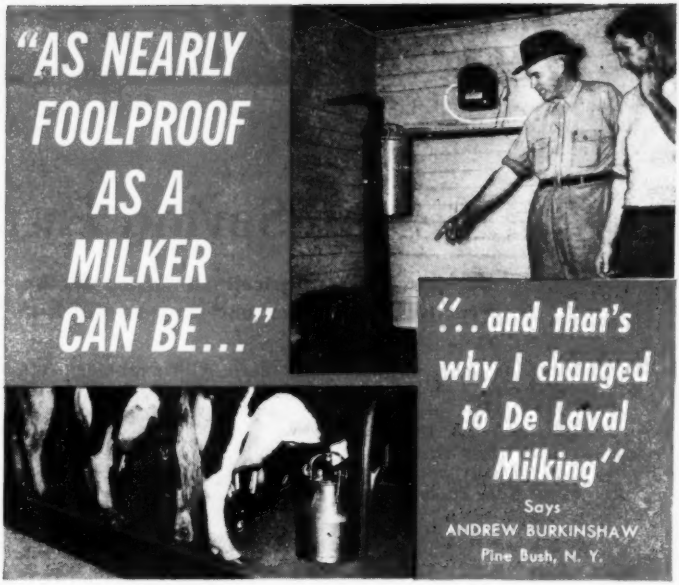
EVERSTOPTOTHINK?—The course of true love never runs up a big light bill . . . . The trouble with a great many marriages is that BOTH husband and wife are in love with the SAME man . . . .

JINGLEJOLLY DEPT.: "Mother, may I go out tonight?" "Oh, no, my darling Jill; Father and I go out tonight—YOU'LL have to tend the still." (WET HEN) . . . . REMEMBER the OPA? We ran across one of their pamphlets a few days ago. It offered this advice on making girdles last longer: "They can best be removed by a good strong jerk." This brings to mind a recorded conversation between two cows. Said the first cow: "What do you think of the new farm hand?" Second cow: "I think he's an AWFUL jerk!" . . . . "There is SOMETHING feminine about a tree. It does a strip tease in the fall, goes about with bare limbs all winter, gets a new outfit every spring and lives off the saps all summer." (Glenn E. Bunnell, Cedar County News.) . . . .OVERHEARD:

"She's the kind of girl who likes to whisper sweet nothing doings in your ear." . . . . The automobile has proven to be a very great moral force. It has stopped a LOT of HORSE STEALING . . . . Then there was the absent-minded professor who sent his wife to the bank and KISSED HIS MONEY goodbye . . . . After years of research a famous psychiatrist has concluded that women wear girdles from instinct—a natural desire to be squeezed . . . . "Was it a good necking party, Gracie?" "I'LL SAY it was! Before the dancing began the hostess said: 'EVERY one CHEWS his partner!'" . . . . From GOOD BUSINESS comes the SNICKERSCOOP of the MONTH:

"She laid the still white form beside those that had gone before. No groan, no sigh burst from her. Then suddenly she let forth a cry that pierced the still morning air, making it vibrate with a thousand echoes. It seemed to come from her very soul. Twice the cry was repeated, then all was quiet again. She would lay ANOTHER egg tomorrow." . . . . SNICKERSNORT of the MONTH: Telephone supervisor to new operator she is just breaking in: "No! No! HOW many times MUST I tell you to say 'Just a moment please,' NOT 'Hang onto your pants, mister.'"

. . . . Your pun peddler—DUFFY.



"I changed to the De Laval Magnetic Speedway Milker because it is the only milker with a set and uniform pulsation speed which cannot be changed by the operators. The new De Laval Magnetic Speedway Milker is as nearly foolproof as a milker can be.

"When you must depend on hired help to carry out the milking operation your equipment must be foolproof. When we used other makes of milkers I found that our help often varied the speed of the pulsator, depending on the individual's own thoughts as to how it should be operated. The surcingle was a nuisance on the suspended type."

Yes . . . Mr. Burkinshaw knows what he's talking about because using another make of milker is a sure but costly way of getting a real appreciation of De Laval superiority.

NOW'S THE TIME FOR YOU TO CHANGE TO THE NEW DE LAVAL!

ONLY DE LAVAL

Only the De Laval Magnetic Speedway Milker gives you the "Magnetic Heart" which assures UNIFORM milking and which means highest milk yield per cow, greatest profits.

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☐ De Laval Separators ☐ De Laval Milking Truck
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Name_____
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Electrical Housekeeping

Edited by NAN SHAW
329 Memorial Union, Ames, Iowa

USDA Step Saving Farm Kitchen

Department of Agriculture Offers Its Best Ideas for a Practical, Attractive and Easy-to-Work-In Farm Kitchen

A STEP saving farm kitchen has been placed on display by the USDA. It is small and convenient enough to save many steps. But it is big enough for three women to work in it comfortably. The kitchen was designed and built by Lenore Sater, head of housing and household equipment, and her associates.

Some of the ideas used in planning this room are explained by Miss Sater:

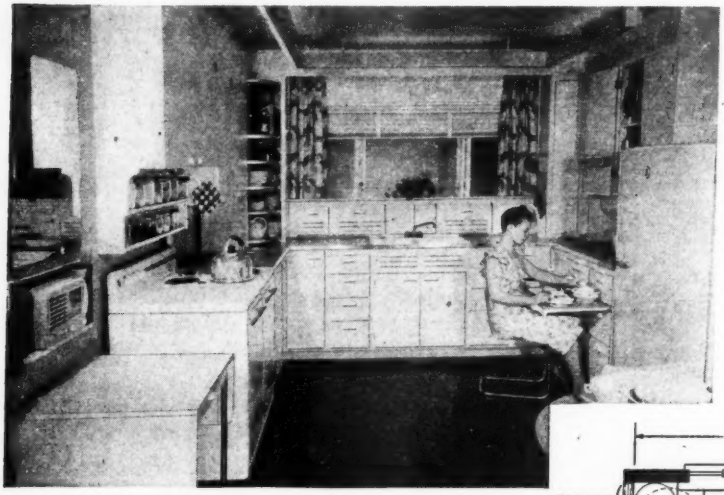
"The unbroken U-arrangement of equipment around three walls forms a compact work center through which household traffic does not pass. It also provides a convenient dining space outside the work area.

"The three key pieces of equipment—sink at center of the U, refrigerator at right end, range at left end—are within easy reach. Other arrangements of the key pieces in a U or an L pattern might be equally convenient.

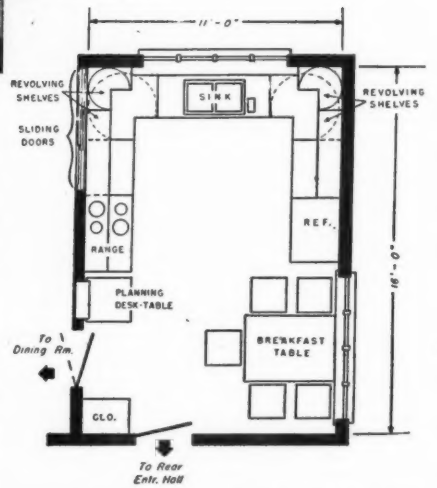
"Work moves from right to left, the direction that suits right-handed workers. Counter space is generous for each job. Ample storage space accompanies the various jobs carried on in a farm kitchen where there is a separate laundry and workroom. All supplies and equipment are stored within comfortable reach of the place where they are used first. Articles used most are stored where they are easiest to see. All cabinets suit the different articles they hold in both size and shape."

Special features of this streamlined farm kitchen include:

Double-deck flour bins. A small



An Up-to-the-Minute Farm Kitchen. Work is from right to left. The mixing center at right is handy to the refrigerator and to storage where supplies and utensils for baking are kept. Vegetable preparation is at right of the sink. Cooking utensils and dishes are stored near the range and sink. Picture shows how the pull-out lapboard, at 26-inch height, enables a worker to sit at a job such as sandwich making.



Above: When a farm family dinner is over, dishes in this kitchen are washed in one bowl of a double sink and drained in the other bowl. Silver is dried and put in shallow drawers almost at serving counter level. Company dishes have cupboard shelves of their own above these drawers and the serving counter.

Below: With vegetable bins in front of her, sink at left, knife rack at right, and a garbage hatch in the counter, Mrs. Carol Howe of the Bureau's staff has a step-saving setup for preparing vegetables. When a meal is over, dishes can be scraped here, double quick.

bin just above the mixing center replaces the usual, less convenient flour canister. Just above is a big reserve flour bin which quickly feeds flour into the small bin when you open a metal shutter.

A convenient, non-stoop garbage disposal arrangement, planned especially for farm use. An oblong opening cut in the counter by the sink permits vegetables to be peeled and plates scraped directly into a pail under the counter. This saves the usual stooping to empty garbage into a pail on the floor. The filled pail may be removed through an opening in the outside wall of the kitchen for convenience in carrying it to farm animals. After emptying, the pail is removed for washing through the kitchen cabinet door. The opening in the counter, the lid which lifts out, and the entire inside of the cabinet holding the pail are lined with metal for cleanliness.

Firmly-held, pull-out boards. These boards automatically lock into place when pulled out. When a simple gravity-stop underneath is released, they push back under counters.

Revolving corner cupboards. These Lazy Susan circular shelves turn on a center pole and are built in the two corners of the kitchen, above and below counter levels. Corner space in kitchens often is wasted because it is difficult to reach in the usual straight cupboard. The revolving shelves at this location make for easy use and ample storage, especially of large utensils. They save both stooping and stretching.

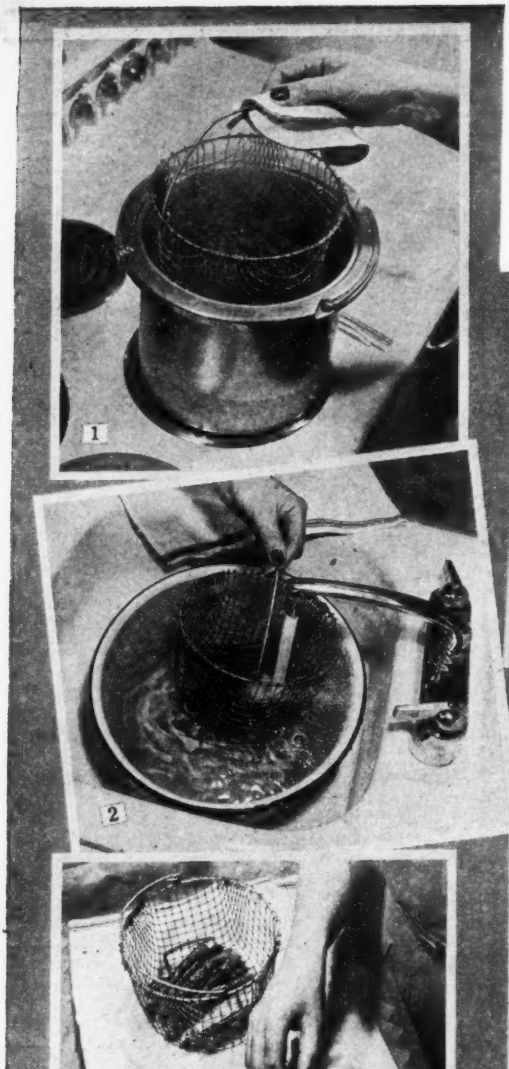
Working drawings for this experimental kitchen are available. For information on how to obtain the drawings, write to the Bureau of Human Nutrition and Home Economics, U. S. Department of Agriculture, Washington, D. C.

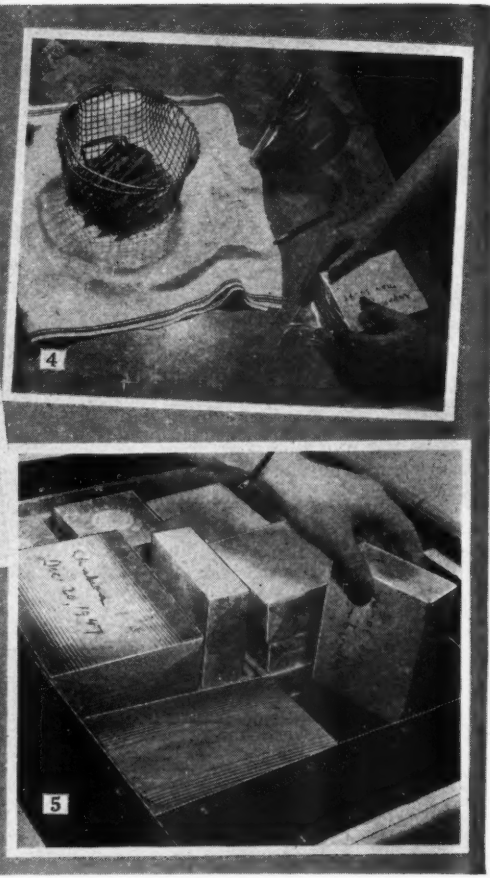
Secretary of Agriculture and Mrs. Anderson inspect one of the Lazy Susans. Dr. Hazel K. Stiebeling, Chief of the Bureau, shows how these revolving cupboards, both above and below the kitchen counters, save space in corners often wasted because it is hard to reach. Shelves are three-quarters way around. Fourth quarter closes the cupboards.

To keep a recipe card in view while cooking, clip it between tines of a fork placed handle down in a drinking glass. Simple and you needn't stoop to read it.

Steps in
Freezing Vegetables

THE time is about here to start freezing and canning some vegetables. Asparagus is one of the first. The steps in preparing and processing asparagus for freezing are similar to those for all vegetables.





Step 1. As asparagus toughens quickly and loses flavor rapidly after harvest it should be prepared for freezing immediately after cutting. Use only upper six inches. Trim, wash and discard all imperfect stalks. To blanch by steam (instead of the boiling water method) place vegetable filled basket on inverted shallow pan in the deep well cooker. Steam asparagus 3½ to 4½ minutes.

Step 2. Thorough and quick chilling is an important step in freezing. Allow at least 1½ times longer for chilling then for blanching.

Step 3. Spears of asparagus should be cut into lengths (when washed before blanching) to fit cartons compactly. Also separate small stalks from large ones before blanching.

Step 4. For packaging asparagus, use rectangular cartons lined with moisture-vapor-proof paper; over-wrap with additional moisture-vapor-proof paper which should be heat-sealed with a warm iron to insure an air-tight seal.

Step 5. Spoilage may result if vegetables are not frozen within 18 to 20 hours (fruits within 24 hours). Any delay in freezing is dangerous.

Cover Picture

Our cover picture this month is of Mrs. Raymond Sayre in her farm kitchen near Ackworth, Iowa. The name is familiar? It should be. She may have spoken at your Farm and Home Week program.

Mrs. Sayre, in addition to being an Iowa farm woman with an electric kitchen, is the newly elected president of the Associated Country Women of the World. It is a world-wide organization with over 5½ million members. She is also a past president of the Iowa Farm Bureau Women.

Early in May, Mrs. Sayre leaves for Switzerland for a conference of a group which has a consultative status with the United Nations. From Switzerland, she will go to London for the annual meeting of the Associated Country Women of the World. In June she will visit farm women's institutes in Scotland and Ireland.

The Sayres live on a 600 acre Iowa farm.

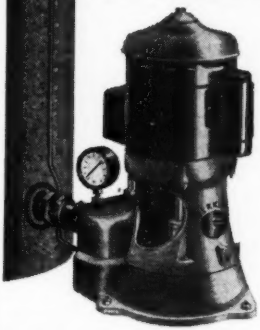
Time to Check Frozen Foods

This is a good month to inventory your frozen food supplies. With labeled and dated packages inventory time is shortened.

Plan menus to move the older dated packages. Not only will this help quality storage but it will open up space for this year's supply of asparagus, rhubarb, strawberries, and peas.

If frozen pork is to be fine in flavor, it should be used within 5 or 6 months of the date stored. When stored too long the fat in pork gradually becomes rancid and the meat loses its best flavor. Longer storage than six months is practical only if all conditions are just right. Salt speeds up rancidity so storage time of frozen and cured meat should be less than that of unsalted meat.

Beef, lamb, and poultry hold their flavor longer than pork in zero storage. If necessary, well-wrapped beef and poultry can be kept as long as a year.



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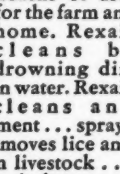
FOR THE HOME



Rexair does all your cleaning—and drowns the dirt in water which you simply pour away. Rexair cleans rugs, carpets, upholstery . . . scrubs and waxes floors . . . dusts furniture, lamps, venetian blinds . . . mothproofs . . . deodorizes. Rexair cleans the air you breathe—takes in dusty, dirty air and expels clean, washed air, healthfully humidified.

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Mrs. Stoutner's Sewing Room

By **RUTH FOSTER**
Extension Home Economist, Washington County, Iowa

"A SEWING room and an electric sewing machine are a grand combination for farm homemakers who have lots of sewing and mending to do," says Mrs. A. K. Stoutner, Keota, Iowa.

When the Stoutners planned their home, Mrs. Stoutner insisted that a sewing *room* be included. The family had suggested putting a window in a clothes closet to use for sewing.

Mrs. Stoutner has never been sorry that she insisted. "By having the sewing room, I can keep all my materials and supplies together. I can leave them spread out when I wish, close the door, and they are not in the way. I enjoy the room, too, because it has a south window which makes it cheery and sunny for wintertime sewing and mending."

Mrs. Stoutner with her electric sewing machine. She makes most of her daughter's and her own clothing and does family mending.

Electric Sewing Machine

Her electric sewing machine, which was purchased two years ago, really makes sewing a pleasure. It replaced a 20-year-old treadle machine. "The electric machine" reports Mrs. Stoutner, "makes sewing lighter and easier work. Now my legs are never tired and achy from a day of treadling."

In this room, Mrs. Stoutner has a double convenience outlet for plugging in the machine, and for a hand iron which is used to press seams as a garment is constructed. Since there is no room for a regular ironing board for pressing jobs, Mrs. Stoutner uses a sleeve board. This can be set on the edge of the machine just to the right of the fly wheel.

"I find that when my iron and sleeve board are handy, I press seams as I sew which makes for more professional looking sewing. If I would have to run downstairs with my garment each time or bring the ironing board upstairs, I might skip the pressing detail as taking too much effort."

Storage for Sewing Supplies

The storage facilities in a sewing room are a great help to a busy homemaker. From the sewing machine stool, Mrs. Stoutner can reach the shelves along the wall, the small cabinet under the window, or the chest of drawers within the

The Stoutner sewing room has convenient storage for threads, needles, scissors and other accessories. In the closets at left are dress goods, clothing in process of making or repair. Drawers for buttons, trim, bindings, etc.

closet—all without getting up. In fact the seat of the stool itself is well-stocked with many colors of sewing thread which come in so handy.

In the sewing cabinet under the window she keeps her scissors, shears, tape measure, and every day threads. The top drawer swings out so that the sewing aids are in easy reach. The bottom drawer of the cabinet contains the attachments.

Behind the double doors across from the sewing machine, Mrs. Stoutner has plenty of room for storing sewing supplies. The upper shelves are well-stocked with feed sacks and materials of various lengths and colors which may be used for dresses or blouses for herself or 10 year-old Judy. "Whenever I see an attractive piece of material which will work into one of our wardrobes I buy it to add to the supply. Then it is ready," explains Mrs. Stoutner.

Below the shelves is a rod on which are hung clothes which are in need of repair or alteration, ones that are being made, or perhaps some that have been outgrown. Below the rod is a chest of drawers containing buttons, edgings, seam bindings, elastic, and other sewing aids. The lower drawer is for old zippers salvaged from worn out dresses.

Behind the other large door, bedding is stored with space at the bottom for two boxes—one containing scraps of material from various sewing ventures and the other a box for patterns.

Light

The south window supplies ample light which comes in over Mrs. Stoutner's left shoulder as she sews. The venetian blind permits directing the light at any time of day to prevent glare. "The little electric light on the machine is a most convenient and useful accessory for it often is needed for a spot of light at the presser foot—especially on dark materials" Mrs. Stoutner says.

"I like the mirror over the machine, too. When I am fitting the neck or shoulders of a dress, I can see how it looks without moving. Of course, if I want a full-length view I mere-

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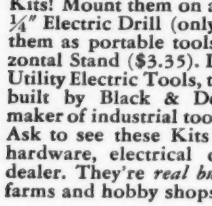

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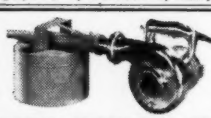

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ly step down the hall a little way.

"I've also found it very convenient to tape the instruction sheet of the pattern I'm using to the wall behind the machine. It's so handy for a quick glance, and I don't lose time hunting it."

For doing the mending involved on a farm, Mrs. Stoutner finds that the release which permits the sewing machine to reverse its stitching without coming to a stop is especially useful. Although the machine has both the knee and foot controls, she prefers the knee control.

Mrs. Stoutner has become adept at using the sewing machine attachments to speed up sewing. She uses the hammer, tucker, ruffler, button holer, the zig-zagger which applies decorations, the corder, and the hemstitcher. These all make special sewing jobs easier, save time, and add extra special touches.

Besides the mending, Mrs. Stoutner has made almost all of her own wardrobe. A gray gabardine suit and topcoat were additions last fall. She makes about three-fourths of her daughter's clothes. "I really enjoy sewing" she declares, "and besides that the clothes are more economical, fit better, and wear longer."

Home Laundering Costs

Fifty-nine cents a week or about $30 a year was the average cost of doing the family laundry at home in 1945. These estimates come from a study of home laundering in 360 farm and city households by Ann Aikin of the New York State Experiment Station. Today the price would be somewhat higher because soap costs more. With new electric equipment it would also be higher.

Most of the families in this study washed at home with non-automatic equipment. The cost was estimated from these findings: Practically all of the families washed just once a week and used the same suds and rinse waters for the entire wash. The wash averaged 5 loads and weighed about 37 pounds. The washer had cost the family about $85 and had been owned about 9 years. An average of $5 had been spent for repairs. From a fifth to a third of a box of granulated soap was used for each wash. Water softener cut soap costs a third with moderately hard water.

Most ironing was done by an electric hand iron costing about $7. Only 48 of the 360 families had electric ironers.

About half of the 59 cents a week went for supplies—soap, softener, etc. plus electric current. The other half went for

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equipment—depreciation, repairs, and interest on the investment which was figured at about 3 percent yearly.

Only 26 of the 360 families owned automatic washers, too few for a reliable comparison. But Miss Aikin found that only two-fifths of the non-automatics had been repaired, although they had been owned from 5 to 30 years, while seven-eighths of the automatics had been repaired although none had been owned more than 7 years. Both original price and repairs count in the cost of the wash. Because all of these costs are higher with an automatic, washing done with one will cost more. Supplies may cost more, too, because automatics require a change of water for each load of clothes, meaning more hot and soft water and more soap used. On the other hand, the saving in energy is greater with an automatic; standards of cleanliness probably are higher; and there may be less wear on clothes during washing.

EDITOR'S NOTE. What are you thinking about that cost of washing?

Add this to your thinking. You could go back to pioneer methods and make your own soap, cut your own wood, heat water over an open fire and wash on a washboard. It might reduce the cash outlay to 15c per week.

Or, if you sent all the clothes to the laundry, the cost could be $2.50 per week. The clothes might not last as long.

Turn to page 4 and read The Cost and Joy of Living.

Ironing Curtains

Iron the curtains on your ironer next time. It's much easier on the weakened threads of the wet material than a stretcher, and avoids pulls. Iron selvages first.

Freezer Alarm Light

A home freezer signal light system that may be installed in any part of the house, regardless of location of the freezer, has been developed by Hotpoint engineers. The light goes out should the freezer temperature rise above a safe point.

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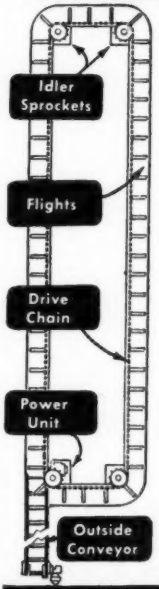
UP TO 3 HOURS OR MORE EVERY DAY with the Eagle

AUTOMATIC ELECTRIC BARN CLEANER



Why put time and back-breaking work on the dirty chore of barn cleaning? Do it automatically — fast — as often as needed, with the Eagle Electric Barn Cleaner. Safe — so simple a child can operate it — the equipment pays for itself in time saved and the chance to take care of larger, better paying herds without extra hired help. Costs only a few cents per day to operate; requires little attention.

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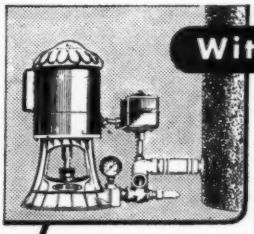

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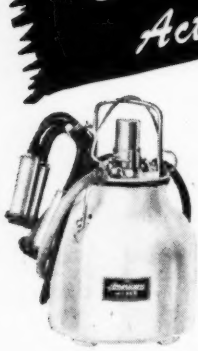

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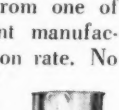

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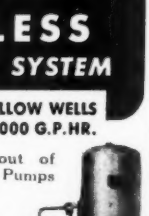

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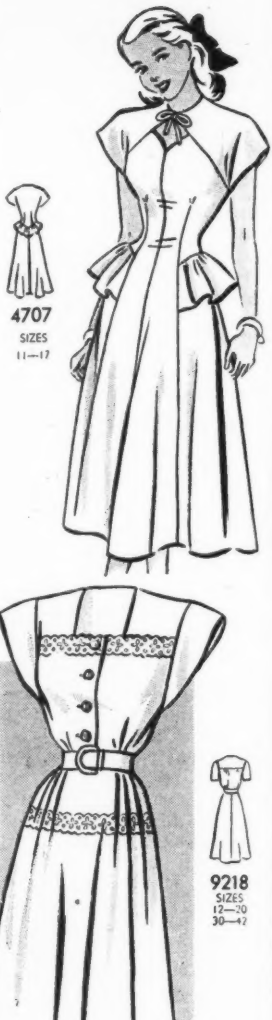

Fashion Sense

4707—A dateable, full skirted frock with an adorable peplum. Lovely to look at—easy to sew. Comes in Jr. Miss sizes 11-17. Size 13 takes 3¾ yards of 39-inch material.

9218—Summertime . . . daytime . . . dateime . . . this frock will always be at its loveliest. Pattern has four sleeve versions. Trim with eyelet. Sizes 12-20; 30-42. Size 16, 3⅛ yds. 35-in.

Send TWENTY-FIVE CENTS (in coins) for each pattern to: ELECTRICITY ON THE FARM, Pattern Dept., Box 196, 243 W. 17th St., New York 11, N. Y.

FIFTEEN CENTS more for the Summer Pattern Book with a free pattern printed in the book.

National Home Demonstration Week

Extension Director, M. L. Wilson of USDA has announced that the National Home Demonstration Week will be observed in 1948, May 2 to 8. The theme, "Today's Home Builders Tomorrow's World," has again been chosen as the keynote for the week's activities.

National Home Demonstration Week is an educational movement. Aims for this year's observance have been agreed upon as follows: 1) obtain wider recognition of problems affecting the entire rural family; 2) encourage the participation of a greater number of families in extension programs; 3) highlight achievements of families through home demonstration activities; 4) recognize the services of volunteer leaders who have contributed to the success of home demonstration work; and 5) emphasize the opportunities in extension work to bring about better understanding of public problems.

Freezer Needs Solid Floor

Folks with an eager gleam in their eye for a home freezer locker need to check their floors before they make their freezer decision.

It's wise to get a freezer large enough to accommodate all the food an average farm family of 5 to 6 will want to put into it. For complete year round service, home freezers should provide at least 5 to 6 cubic feet of food storage space for each member of the family—and then some for extras. A cubic foot of freezer space holds about 30 to 35 pounds of food. A farm home planning a 30 cubic foot freezer would be able to store 1000 to 1200 pounds. In food this might mean a total of half a steer, a calf, small hog, 24 fowl, and 200 quarts of fruits and vegetables.

This size freezer for home use calls for a sturdy floor and underpinning. To run right, the freezer needs to stand level, too.

A clean, cool, dry and well-ventilated room is best for keeping operating costs low. It

grandma snorted,
"New Fangled Nonsense!"
but you should have heard her Coo-o
when she saw my Norge Electric Range!
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FULLY AUTOMATIC
ELECTRIC RANGE
Here's a modern beauty that has good looks . . . and really cooks automatically. This range turns itself on, cooks your meal, and then turns itself off. You'll enjoy many of the new improvements known to the science of electric cookery with this range. There's new contour design . . . seven-speed surface units . . . Saftee switch . . . deep-well cooker . . . two-element oven . . . appliance outlet . . . locker-type utensil compartments . . . plate warmer . . . and many other features. "The best dealer in town sells Norge" . . . he's listed in the classified section of your telephone book. Norge Division, Borg-Warner Corporation, Detroit 26, Michigan. In Canada: Addison Industries, Ltd., Toronto, Ontario.
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ELECTRIC WATER HEATERS
GAS RANGES
HOME HEATERS
HOME & FARM FREEZERS
WATER COOLERS
SEE
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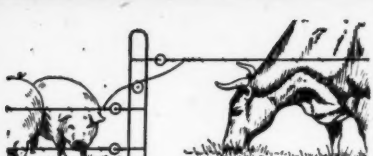


Does double duty

— makes fencing jobs easier, licks the tough ones:

PRIME

Double-Circuit Hi-line Controller for Electric Fence

Now you can use electric fence in ways never before possible. With this double-duty controller, you can operate two independent one-wire fences —or one two-wire fence. A short on one wire does not affect the other.

Because there is a doubly strong shock *between* the two wires, you can control hard-to-hold animals, like hogs and sheep. Hold livestock on soil that provides poor "ground" for ordinary electric fence.

And like other Prime hi-line controllers, this 2C1 delivers *a stronger shock than any other leading make.* Yet it is a *safe* shock, for all Prime hi-line units carry the Underwriters' label.

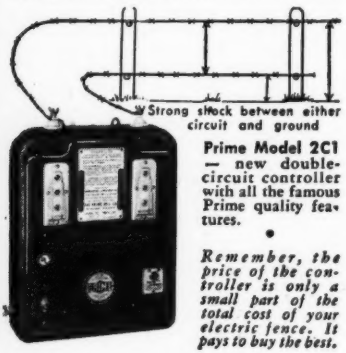
See your Prime dealer now. And write for detailed information.

The Prime Mfg. Co.

1656 South First Street, Milwaukee 4, Wisconsin

Notice this double action

Doubly strong shock between the two circuits.



Prime Model 2C1 — new double-circuit controller with all the famous Prime quality features.

•

Remember, the price of the controller is only a small part of the total cost of your electric fence. It pays to buy the best.

should also be a spot not reached by the direct rays of the sun. Some folks who are putting in insulated first-floor work-rooms are planning space there for a freezer.

If it's to go on the first floor, check to see if the floor needs reinforcement or possibly new flooring. The average freezer will just about double its natural weight when filled to capacity. Even a concrete floor may need reinforcement either with a new topping or by building a platform for the freezer.

Make sure that when your freezer is installed it has a separate electric circuit of its own. Don't use an extension cord.

A New Lima Bean for Freezing

Here is some good news if you are looking for a good lima bean to freeze. Peerless is a new bush lima bean that is available to home gardeners this year for the first time. It is listed in most of the seed catalogs. The bean is suited for growing in any part of the country.

The plants are smaller than Fordhook and can thus be spaced more closely together. They are resistant to high temperatures, so a large number of pods set when other varieties are losing blossoms because of the heat. The new lima is light green in color, and makes an attractive frozen product.

Filling the Freezer

In filling your home freezer with foods to be frozen, make sure each food package is placed so that it touches one wall or rests on a refrigerated shelf of the cabinet.

Reduce Rhubarb's Sugar Needs

Your deep well cooker is ideal for rhubarb season. Although rhubarb has little actual food value, its tart flavor adds zest to springtime meals. To reduce the amount of sugar necessary, select fresh, young stalks. As rhubarb matures it becomes more acid. You can keep the amount of sugar at a minimum by withholding it until just before taking the sauce from the heat.

Convenient

OFFSET INSTALLATIONS

Jacobsen jet pumps can be conveniently installed in basements, sheds, etc., away from water source.

Dependable performers in farm and suburban homes, Jacobsen pumps have a lift capacity up to 120 feet and 1470 gallons per hour maximum output.

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For Greater Safety and Better Taste

PASTEURIZE

with the

SAFGARD

Home Milk Pasteurizer

The Only Complete Home Pasteurizer

- Twin Agitation
- Aeration
- Indirect Heating
- Simple, Automatic Operation

2-gallon capacity; 110-Volt AC Operation

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GET THIS BOOKLET FREE

It tells how you can have all the advantages of clean, clear, soft water on the farm at very little cost. No obligation. Write for it today.

•

OSHKOSH FILTER & SOFTENER CO.

Oshkosh, Wisconsin

Questions and Answers

Removing Rust Deposits from Fence Insulators

▶**Question:** *Can you give me a cheap and efficient method of removing rust deposits from electric fence insulators? Emery cloth takes time and removes the glaze. What chemical would you suggest?*
T. G. L., Md.

▶**Answer:** Try the following solution for removing rust stains from your insulators. Ammonium citrate (20-30%) to which has been added a little household ammonia and water.

Underground Wires

▶**Question:** *Please give best plan for transmitting electric current underground. I want to run three No. 6 wires a distance of about 125 ft underground from shed to house. There are trees in the way to run them on poles.* A. S., Pa.

▶**Answer:** Two types of underground cable are available. One is a non-metallic sheath cable and the other is a cable covered with lead and then with a fabric. These cables may be buried directly in the soil or they may be laid in tile or conduit so they can be pulled out and replaced in case of trouble. If you place them directly in the soil, be sure they are below the frost line and where they are not likely to be dug or chopped into. The ends of the cable should be carried up above the ground surface for splicing or connecting in order to keep moisture out.

Motor Protection

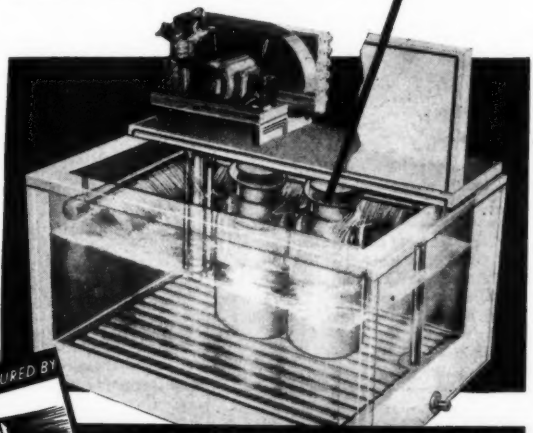
▶**Question:** *Recently, we had a ¾ hp motor almost "burn up" due, the electrician said, to the starting condenser going bad, causing all lead wires to burn out, damaging the switch. The motor is on a pump in the basement that pumps cistern water into the house, and my wife shut it off when she smelled it—luckily in time.*

To prevent recurrence, our electrician suggests using on all our single phase motors, manual motor starting switches having self contained overload protection.

Is this feasible and practical? If

arctic jet saves dollars

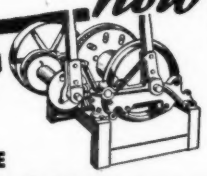
"CAN-TOP" jet cooling keeps bacteria down—keeps quality up . . . brings bigger milk checks. Better look into it!



"SIGN OF A SUCCESSFUL DAIRY"
Quality INSURED BY arctic jet MILK COOLER

THE SARGENT-ROUNDY CORP.
Randolph, Vermont
For literature, write Dept. A

HIRE THIS "EXTRA" FARM HAND Now



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THE IRELAND FARM HOIST

You can unload hay faster, easier . . . whether it's loose or baled . . . replace a team at the barn . . . save a driver's time. Get your haying done early—and then use this "Extra Hand" to speed up tough jobs year round. It's great for storing apples, potatoes, ice, feed, bales, pulling stumps. Your dealer has your Ireland Hoist now. Stop in and see it.

BENNETT-IRELAND, INC.
548 Marsh Street, Norwich, New York

Invest in an EVERITE Electric Water System

If you need a Water System—and what farmer doesn't?—be sure to examine the new Everite models. If you know pumps, you'll appreciate their modern design, outstanding mechanical features, the get-at-ability of adjustable parts. You'll be investing—not spending—money when you get a long-lived Everite.

Write for descriptive literature

EVERITE PUMP & MFG. CO. Inc.
611 North Prince St., Lancaster, Penna.

FASTER, EASIER WAY
to trim Hedges, Shrubs, etc.

The new Sunbeam high-speed trimmer, built and powered to trim hedges in a jiffy, saves you hours of hard, tedious work! Remember the lightweight (4¼ lbs.) Sunbeam is a precision instrument in every detail from high-grade, cutlery-steel cutter bar to 110V AC-DC motor. Built by the makers of famous Sunbeam Electric Appliances and Rain King Lawn Sprinklers. $37.50 at your dealer's.

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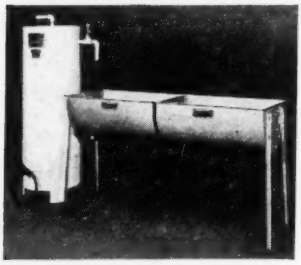
Dept. 30, 5600 W. Roosevelt Rd., Chicago 50

Upgrade Your Milk For Greater Profits!



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- External heating element reduces liming
- Ready to plug in
- Boiler-plate-tanks rust proof zinc metallized
- Meets all Health Authority requirements

Also non-pressure type capacity 15 gals. $44.95 fob Janesville, Wis.

SEE THE NEW (HOLD ALL) CAN RACK—HOLDS UTENSILS, PAILS AND ALL SMALL PARTS

WRITE Dept. 5 for complete information

ROY L. MEYERS MFG. CO.
Janesville, Wis.

so, what about our 1 hp motor on our deep well pump, ½ hp and 1/10 hp on our milk cooler, ½ hp on our deep freezer and ½ hp on our refrigerator.

Would you advise same to be installed on other motors or what, if anything, should be done?

D. C. B., Ohio

▶**Answer:** The best way I can answer your letter is to send you copies of articles from our March and May 1943 issues. These articles went into detail regarding the protection of motors of different sizes.

It is a good idea for the protection of your equipment and for preventing possible fires, to have some sort of protective device on all motors. Each motor must have a protective device—fuse or breaker designed for the particular amperage that motor uses. You can get that amperage from the nameplate. Sometimes these protective devices are built into the motor. If they are not, they can be placed in the circuit supplying the motor.

Freezers vs Lockers

▶**Question:** *In your August-September, Coverall Issue (1947), I feel you make contradictory statements on freezers. I refer to page 50, Farm Refrigeration, heading Freezers. Second paragraph "Counting interest on the investment, it costs more to operate a freezer than to rent a locker of equal capacity . ."*

And to page 54, "Freezer Lockers containing 25 to 40 lockers and a chill room have been built on a few farms. They serve the farmer and a few close neighbors. Locker rentals pay the cost and operating expenses . ."

We have had a 16 cubic foot freezer for a year now and like it fine. The wife claims that it improves the flavor of turkeys placed in it. However, one this size does not help when you have several hundred turkeys, and intend raising thousands, so a walk-in freezer is the only answer.

We live 30 mi from downtown Chicago. There are locker plants 5, 7, 10 and 12 miles from us. I would like to build a small plant if locker rentals would help pay for it. I plan to put the 16 cu ft box inside the larger one for sharp freezing. Is this practical?

E. E. B., Ill.

▶**Answer:** Both statements on page 50 and page 54 are correct. From actual figures that have been put out by the Department of Agriculture and others, lockers have the edge on cost if you do not consider the cost of driving back and forth to put things in and take them out. The larger the farm freezer, the lower would be the cost of operating per cu ft of space. The point would eventually be reached where the cost of the farm freezer would be no higher than that of renting lockers. The thing that brings the home freezer cost up is the interest on the investment and the depreciation on the box. The advantage of having the box handy where you can use it for many different purposes usually makes up for this difference in cost of operation.

The other statement that a small

WOOD'S— MAKERS OF WOOD'S FEED GRINDERS & ROLLERS

Now bring you...

WOOD'S ELECTRIC MILK COOLERS

• The world's finest milk coolers—proven 17 years. Cool milk to 50° in one hour.

Units for built-in tanks as shown—or portable models. 4 to 24 cans. Write for catalog.

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BOOMS WAGON UNLOADER
Get prices and particulars from
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400 x 8, with pneumatic 4 ply B. F. Goodrich or Schenuit Tires. Standard 5/8 ball bearing 6" hub. (16" dia. overall) . . . **$12.50 Post Paid**
Send Check or Money Order—No C.O.D. or Stamps. Complete line of Wheels and Casters—Send for Free Catalog.

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AUTOMATIC ELECTRIC
SG WATER WARMERS

For POULTRY and DAIRY—thermostatic controls. Floating, platform or immersible types for every need. Safe. Economical—See your dealer or write regarding these SG aids to Progressive Farming.

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The SMITH-GATES Corp.
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ASK YOUR DOCTOR

About the dangers of drinking raw milk.

It may cause such milk-borne diseases as Undulant Fever (Brucellosis) resulting from Bang's disease, Typhoid Fever, Scarlet Fever, etc. The only certain way to make milk safe is to pasteurize it.

WATERS CONLEY HOME PASTEURIZER

Handy one-gallon size. Entirely automatic. Assures positive pasteurization. Operates on 110 AC current. See your dealer or write for free folder:

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McDowell *Patented Irrigation*

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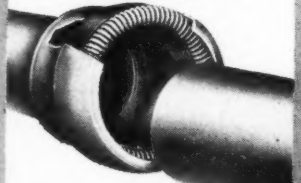
Faster to move, quicker and safer to couple, adaptable for Giant Sprinkler Mounts or standard systems from 2" to 6"



Write for the Name of Your Nearest Dealer or Distributor

McDOWELL MANUFACTURING CO.
PITTSBURGH 9, PENNSYLVANIA

locker plant on a farm has been built and pays for itself is also correct. One of the professors at the University of Connecticut has devised such a small locker plant and built it on a farm. He has figured out that a 30 locker plant will pay for itself in three years if the users pay $27 per year per locker. After that, they would pay something like $8 or $9 per year. The rental of the locker would include use of a chilling room. The $27 rental is a very high price but the farmers were willing to pay it for the convenience of having the locker near by.

It is my opinion that you would have no difficulty in renting your lockers. You could not rent them for anything like $27 per year, however, with other locker plants in the vicinity asking only half that much or less. Even the lower rentals would help to pay for the upkeep and carrying charges on the plant. You would probably have to work out some arrangement for self-service as you could hardly afford to have someone on hand at all times with only a few lockers available for rent.

Your plan for using your 16 cu ft freezer inside of a larger frozen food storage room would be satisfactory. I would not buy a freezing cabinet especially for that purpose but so long as you have the unit, you would save some extra costs by using it. The condenser unit, however, should be placed outside the walk-in box.

Flexible, Portable Power Unit

▶**Question:** *I'm trying to figure out a very flexible drive, and am wondering if I could take a gasoline engine and drive a generator, thus using an electric cord for the drive. Would this automatically have to be a direct current outfit?*

Using a one hp motor as an example, would the motor have one hp of energy at any speed run, or would it have to turn at a given speed to develop the one hp? If the variation of speed makes a reduction of power, how great a percentage of reduction would it make?

Using 50 ft of cord what size of generator and wire would have to be used? What would happen if you had the engine and generator running, but still did not have the motor hooked up to the other end of the cord, would it burn up the generator?

Does the motor or generator have any limitations on the length of time they can operate at one time?

Are all one hp motors of the

A VOGEL FROST-PROOF HYDRANT
Will Never Freeze

★ Running water all year 'round.
★ Reduces fire hazard.
★ Over a million Vogel Frost-Proof Closets and Hydrants have been sold.
★ Will never freeze when properly installed.

When you see the handle in this position you know at a glance that the water is surely shut off.

See your plumber or write us direct.

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GENEROUS • LIVELY • SPARKLING
RUNNING WATER at LOWEST COST

with an **APCO** *Master Line* **WATER SYSTEM** (SHALLOW WELL)

WRITE for BULLETIN 112-A

You make an investment in better living and greater farm profits when you install an APCO Master-Line Unit. Operating at slow speeds (1750 R.P.M.) and with only one moving part in the pump, you are set for many years of superb water service—enough for EVERY farm need including FIRE PROTECTION. 325 G.P.H. (others up to 3000 G.P.H.) Silent operation. Instant response. Life-Time replaceable pump covers. SATISFACTION GUARANTEED.

We Also Make Deep Well Pumps

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88 Loucks St., AURORA, ILLINOIS

same approximate weight? Are any made of aluminum or some other light metal? I would like the motor as light as possible. The weight of the generator would not make much difference.

L. F., Mo.

▶**Answer:** Since you ask about using a gasoline engine to generate power for a flexible drive I assume this drive will be used away from any source of high-line power.

It is not absolutely necessary to generate direct current with a gasoline engine but it is usually done because the cost of the generator is less. An alternating current generator requires a d.c. exciting generator for the coils of the alternator.

In order to operate a 1 hp motor at full power, you would need to have a generator which would deliver at least 1 kilowatt. There are many lighting plants made that are rated at 1 kilowatt. Most of these are 32 volt direct current plants although you can obtain them to produce 110 volt current. The generator must be run at rated speed in order to deliver its full output. Lighting plant engines have governors for this purpose. The amount of reduction in power output with speed depends upon the generator winding.

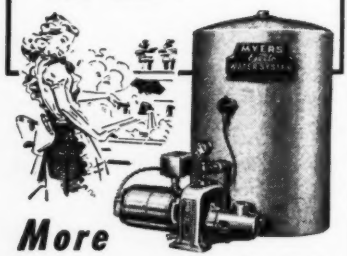
Most motors and generators are designed for continuous operation. If they are not overloaded they may be kept running, if properly oiled, for an indefinite period. Motors drop off in efficiency if not operated at rated speed but will pull their rated horsepower or more when slowed down momentarily by an overload.

One horsepower motors are not all the same weight. The weight depends upon the speed of the motor. High speed motors weigh less than low speed motors. During the war there were some motors made of extremely small weight in comparison with horsepower. These were used largely in airplanes for wing control and other purposes where it was necessary to keep down the weight.

If your generator is one hp and 110v you could use No. 14 wire; No. 12 would be better. With a 32v generator at 50 ft you would need No. 8 wire or larger.

No damage will be done to the generator by operating it without the motor load.

More Happiness for Her!



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TOWN_____ STATE_____

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Knife for Food Chopper

▶**Question:** *I have lost the four blade knife to my food chopper, No. 1110, Griswold. Can you tell me where I may send to get a knife?* S. M. H., Kans.

▶**Answer:** The Griswold food choppers are made by the Griswold Mfg. Company, Erie, Pa.

Flue Gas Through Hay

▶**Question:** *In one of your recent issues you gave the heat efficiencies of various types of fuel. You mentioned that coke could be used as fuel without a chimney. I would like more information on this type of heating for a hay drying system of mine. How about safety of such a system?* J. G., Minn.

▶**Answer:** The article in our October 1947 issue was in connection with drying corn rather than hay.

In some hay drying operations the flue gases are blown through the hay. It requires almost perfect combustion, however, and if anything other than oil or gas fuel is used, you should provide spark arrester screens to prevent any sparks being carried over. Personally I would be a little hesitant in blowing the products of combustion from a coal or coke fire through the hay in a hay mow. If it were in a metal haymaker removed from the barn, I might take a chance.

Some of the manufacturers of crop drying equipment might be able to give you information about installations which have been successful. Several companies make these driers.

Power to Mow Lawn

▶**Question:** *How many kilowatt hours will an electric lawn mower use for a lawn of 23,000 square feet? I must have an estimate in a short time.* M. C. S., Ind.

▶**Answer:** I estimate that you would use about 1 kilowatt hour of electricity in mowing a lawn of 23,000 square feet.

The basis for this estimate is that you use a 16" or 18" lawn mower powered by ¼ horsepower motor, and that you cut an average strip 12" wide each time over. That would mean you would walk about 23,000 feet or 4-3/10 miles in cutting the lawn. Assuming you walk a little more than two miles per hour, that would take two hours. The motor will use between 250 and 500 watts, depending on the sharpness of the mower and the kind of grass. Figuring the maximum amount of 500 watts per hour for two hours, would give you 1 kilowatt hour of electricity.

Motorizing Cream Separators

▶**Question:** *Is it possible to put a motor drive on a hand turned cream separator? Table models as well as stand models?* R. W. P., Ill.

▶**Answer:** Yes. Most manufacturers make adapters for their own make of separators. Write to the manufacturer and ask for illustrations, instructions and prices. If there is no attachment for your separator, you may be able to put a drive pulley on the high speed shaft of the separator. We have also seen small separators driven by ¼ hp motors, using a large V pulley on the separator and mounting the motor so it can be tipped to slip the belt in starting the separator. A separator is hard to start. Slipping the belt is similar to using a clutch in starting.

Now at last...a Barn Cleaner that can really *take it!*

After years of testing and development, here is a barn cleaner that can really *take it* . . . a barn cleaner that is engineered from motor to gutter chain with the *reserve strength* necessary to insure dependable, trouble-free performance. Strong, rugged construction is the key to successful barn cleaner operation, and in the Leach Barn Cleaner you will find every part, every gear, every bearing, every chain link built strong enough to withstand everything the electric motor can put on it, with strength to spare. Here then, is your barn cleaner — because *dependable* performance above everything else is surely what you want. Return the coupon below for complete descriptive literature.

- ★ Everything is automatic — just flip the switch and go about doing other chores.
- ★ Keeps your barn clean and fresh.
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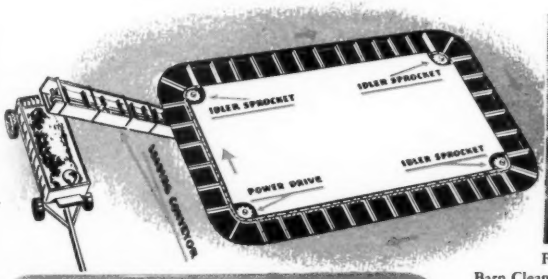

For your own benefit and protection, don't install a Barn Cleaner until you check with Leach — returning the coupon below and getting full information. Do it today, now!

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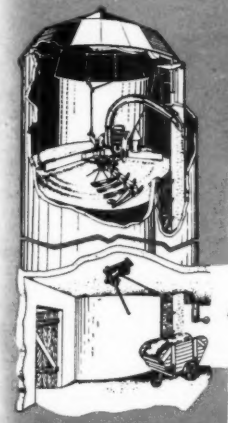

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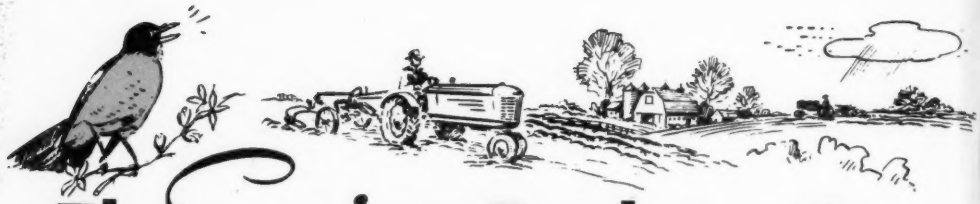

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